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JOURNAL

OF THE ROYAL STATISTICAL SOCIETY,

MARCH, 1887.

THE ROYAL STATISTICAL SOCIETY.

This Society having been incorporated by Royal Charter, dated the 31st January, 1887, a copy of the Charter *in extenso* is here given:—

Victoria, by the Grace of God of the United Kingdom of Great Britain and Ireland Queen, Defender of the Faith.

To all to whom these Presents shall come, Greeting:—

Whereas Our Right trusty and entirely beloved cousin, Henry, Third Marquess of Lansdowne, Knight of the Most Noble Order of the Garter, Charles Babbage, Fellow of the Royal Society, John Elliott Drinkwater, Master of Arts, Henry Hallam, Fellow of the Royal Society, the Reverend Richard Jones, Master of Arts, and others of Our loving subjects, did, in the year One thousand eight hundred and thirty-four, establish a Society to collect, arrange, digest and publish facts, illustrating the condition and prospects of society in its material, social, and moral relations; these facts being for the most part arranged in tabular forms and in accordance with the principles of the numerical method, and the same Society is now called or known by the name of "The "Statistical Society."

And Whereas it has been represented to Us that the same Society has, since its establishment, sedulously pursued such its proposed objects, and by its publications (including those of its transactions), and by promoting the discussion of legislative and other public measures from the statistical point of view, has greatly contributed to the progress of statistical and economical science.

And Whereas distinguished individuals in foreign countries, as well as many eminent British subjects, have availed themselves of the facilities offered by the same Society for communicating important information largely extending statistical knowledge; and the general interest now felt in Statistics has been greatly promoted and fostered by this Society.

And Whereas the same Society has, in aid of its objects, collected a large and valuable library of scientific works and charts, to which fresh accessions are constantly made; and the said Society has hitherto been supported by annual and other subscriptions and contributions to its funds, and has lately acquired leasehold premises in which the business of the said Society is carried on.

And Whereas in order to secure the property of the said Society, to extend its operations, and to give it its due position among the Scientific Institutions of Our kingdom, We have been besought to grant to Sir Rawson William Rawson, Knight Commander of the Most Distinguished Order of St. Michael and St. George, and Companion of the Most Honourable Order of the Bath, and to those who now are Members of the said Society, or who shall from time to time be elected Fellows of the Royal Statistical Society hereby incorporated, Our Royal Charter of Incorporation for the purposes aforesaid.

1. **Now Know Ye** that We, being desirous of encouraging a design so laudable and salutary, of Our especial grace, certain knowledge and mere motion, have willed, granted, and declared, and Do by these Presents, for Us, Our heirs and successors, will, grant, and declare that the said Sir Rawson William Rawson, Knight Commander of the Most Distinguished Order of St. Michael and St. George, and Companion of the Most Honourable Order of the Bath, and such other of Our loving subjects as now are Members of the said Society, or shall from time to time be elected Fellows of "The Royal Statistical Society" hereby incorporated according to such regulations or bye laws as shall be hereafter framed or enacted, and their successors, shall for ever hereafter be by virtue of these presents one body politic and corporate, by the name of **"The Royal Statistical Society,"** and for the purposes aforesaid, and by the name aforesaid, shall have perpetual succession and a common seal, with full power and authority to alter, vary, break, and renew the same at their discretion, and by the same name to sue and be sued, implead and be impleaded, answer and be answered, unto and in every Court of Us, Our heirs and successors.

2. **The** Royal Statistical Society, in this Charter hereinafter called "The Society," may, notwithstanding the statutes of mortmain, take, purchase, hold and enjoy to them and their successors a hall, or house, and any such messuages or hereditaments of any tenure as may be necessary, for carrying out the purposes of the Society, but so that the yearly value thereof to be computed at the rack rent which might be gotten for the same at the time of the purchase or other acquisition, and including the site of the said hall, or house, do not exceed in the whole the sum of Two thousand pounds.

3. **There** shall be a Council of the Society, and the said Council and General Meetings of the Fellows to be held in accordance with this Our Charter shall, subject to the provisions of

this Our Charter, have the entire management and direction of the concerns of the Society.

4. **There** shall be a President, Vice-Presidents, a Treasurer or Treasurers, and a Secretary or Secretaries of the Society. The Council shall consist of the President, Vice-Presidents, and not less than twenty Councillors; and the Treasurer or Treasurers, and the Secretary or Secretaries if honorary.

5. **The** several persons who were elected to be the President, Vice-Presidents, and Members of the Council of the Statistical Society at the Annual Meeting held in the month of June, One thousand eight hundred and eighty-six, shall form the first Council of the Society, and shall continue in office until the first Election of officers is made under these presents as hereinafter provided.

6. **General** Meetings of the Fellows of the Society may be held from time to time, and at least one General Meeting shall be held in each year. Every General Meeting may be adjourned, subject to the provisions of the Bye Laws. The following business may be transacted by a General Meeting, viz.:—

(*a.*) The Election of the President, Vice-Presidents, Treasurer or Treasurers, Secretary or Secretaries, and other Members of the Council of the Society.

(*b.*) The making, repeal, or amendment of Bye Laws.

(*c.*) The passing of any proper resolution respecting the affairs of the Society.

7. **Bye Laws** of the Society may be made for the following purposes, and subject to the following conditions, viz.:—

(*a.*) For prescribing the qualification and condition of tenure of office of the President; the number, qualifications, functions, and conditions of tenure of office of the Vice-Presidents, Treasurers, Secretaries, and Members of Council, and Officers of the Society; for making regulations with respect to General Meetings and Meetings of the Council and proceedings thereat, and for the Election of any persons to be Honorary Fellows or Associates of the Society, and defining their privileges (but such persons, if elected, shall not be Members of the Corporation), and for making regulations respecting the making, repeal, and amendment of Bye Laws, and generally for the government of the Society and the management of its property and affairs.

(*b.*) The first Bye Laws shall be made at the first General Meeting to be held under these presents, and shall (amongst other things) prescribe the time for holding the first election of officers under these presents.

8. **The** General Meetings and adjourned General Meetings of

the Society shall take place (subject to the rules or bye-laws of the Society, and to any power of convening or demanding a Special General Meeting thereby given) at such times and places as may be fixed by the Council.

9. **The** existing rules of the Statistical Society, so far as not inconsistent with these presents, shall be in force as the Bye Laws of the Society until the first Bye Laws to be made under these presents shall come into operation.

10. **Subject** to these presents and the Bye Laws of the Society for the time being, the Council shall have the sole management of the income, funds, and property of the Society, and may manage and superintend all other affairs of the Society, and appoint and dismiss at their pleasure all salaried and other officers, attendants, and servants as they may think fit, and may do all such things as shall appear to them necessary or expedient for giving effect to the objects of the Society.

11. **The** Council shall once in every year present to a General Meeting a report of the proceedings of the Society, together with a statement of the receipts and expenditure, and of the financial position of the Society, and every Fellow of the Society may, at reasonable times to be fixed by the Council, examine the accounts of the Society.

12. **The** Council may, with the approval of a General Meeting, from time to time appoint fit persons to be Trustees of any part of the real or personal property of the Society, and may make or direct any transfer of such property so placed in trust necessary for the purposes of the trust, or may, at their discretion, take in the corporate name of the Society conveyances or transfers of any property capable of being held in that name. Provided that no sale, mortgage, incumbrance, or other disposition of any hereditaments belonging to the Society shall be made unless with the approval of a General Meeting.

13. **No** Rule, Bye Law, Resolution, or other proceeding shall be made or had by the Society, or any meeting thereof, or by the Council, contrary to the general scope or true intent and meaning of this Our Charter, or the laws or statutes of Our Realm, and anything done contrary to this present clause shall be void.

In witness whereof We have caused these Our Letters to be made Patent.

Witness Ourself, at Westminster, the thirty-first day of January, in the fiftieth year of Our Reign.

By Warrant under the Queen's Sign Manual,

MUIR MACKENZIE.

L.S.

"SLIDING SCALES *and other* METHODS *of* WAGE-ARRANGEMENT *in* "*the* NORTH *of* ENGLAND."

By L. L. F. R. PRICE, ESQ., B.A.

[Read before the Statistical Society, 21st December, 1886. PROFESSOR H. S. FOXWELL, M.A., a Vice-President, in the Chair.]

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I.

If there is one fact more than another which seems to be forced home upon the mind of the inquirer by the study of industrial and economic problems, it is this—that there is not, nor indeed is it probable that there can be, any single panacea for social ills. But the recognition of this fact, paradoxical as the inference may at first sight appear, really supplies no adequate warrant for any deadening or pessimistic despondency as to the prospects of the future improvement of society, but is rather the necessary condition of a healthy and sturdy optimism. For so seldom is it really the case, in the economic sphere of things at least, that history exactly "repeats itself," and so diversified are the details of even contemporaneous industrial society, that any scheme which professes to cure all economic maladies by an uniform unalterable method of treatment may almost be said to carry with it its own condemnation. And were we to rest all our hopes of the improvement of society upon any one of the many panaceas which are prescribed from time to time by ardent enthusiasts, whose ardour perhaps is more conspicuous than their discretion; were all our "ventures" "in one "bottom trusted," then indeed the prospect might well be gloomy enough to call for the most despairing pessimism, for then to the success or failure of a single scheme would be linked, for better or for worse, the fortunes of society. The significance, however, of this fact is often neglected. Again and again the world is told, and the tale has been reiterated so often that it now falls, in some cases, we are afraid, upon deaf or unwilling, in others upon disappointed and incredulous ears, that a "simple yet sovereign "remedy" for social ills has been found—a remedy of universal application, and a remedy of undoubted and indubitable efficacy. And on the other hand, again and again is the kindred fallacy committed of arguing from the failure or success of a remedy in a particular case, to its necessary failure or success in all cases and under all conditions.

In examining the special question of the peaceful settlement of industrial disputes, we must never lose sight of these general considerations. For here, as elsewhere, we must not expect to find that there is one uniform method which can be applied with certainty of success to all industries and to every dispute, but we must rather be prepared to recognise the greatest diversity of detail. It is because the principle of conciliation is capable of the most varied application, and can, while it remains unaltered as a principle, be readily adapted and modified in its details so as to suit the different circumstances of different industries, that Mr. Crompton, in his essay on "Industrial Conciliation,"[1] has claimed for it the title of a "panacea."

In one case there may be no organised system for the settlement of disputes, but merely occasional and irregular negotiations between the two parties, either before the open declaration of conflict or during the continuance of the struggle; and the question in dispute may sometimes be referred to the decision of an arbitrator. In another case there may be an organised machinery for the prevention of disputes and the harmonious adjustment of points of difference. There may be, in short, established boards of conciliation or courts of arbitration. These boards, again, may vary in their constitution and action. They may settle the industrial relations of the future as well as the quarrels of the past; and they may for this end adopt different lines of conduct. They may from time to time arrive at definite agreements as to the rate of wages; or they may construct a "sliding scale," as it is called, by which wages may almost be said to regulate themselves automatically in accordance with fluctuations in price or some other standard. Nor is one principle only employed in the construction of these scales.

It would be absurd, therefore, to pretend that there is any regular law of development in the peaceful settlement of industrial disputes. For the varieties we have mentioned above are not mutually exclusive. We may distinguish arbitration from conciliation on the ground that the one is chiefly applicable to the settlement of disputes as to the past, and the other to the arrangement of industrial relations for the future, or on the more solid ground that the latter is voluntary and the former compulsory in character. But in making this distinction we must remember that provision for arbitration is often, nay generally, made in the constitution of boards of conciliation, and that it is employed to settle the rate of wages for the future as well as to adjust the quarrels of the past. Nor, as we shall see hereafter, does the "automatic" regulation of wages by a sliding scale exclude the occasional intervention of arbitration or conciliation; for a common ground of action must be agreed upon at starting, and modifications may from time to time be necessitated by fluctuations in trade, which were not contemplated at the first construction of the scale. To lay down, then, a definite order of succession in which one method of the settlement of disputes is and must be developed from another, would be as open to objection as it would be for philologists to suppose that in all cases languages have passed from a monosyllabic to an agglutinative, and from that again to an inflexional stage; or for students of sociology to maintain that all races of men have gone through the various steps of development put forward by different theories of primitive society.[2] If there are differences between different industries, then a method of conciliation suited to the circumstances of one may conflict with the traditions and unwritten law of another; and here, if anywhere, it seems necessary to clearly recognise the fact that, if the principle is to work smoothly, the details must be left for settlement in each case to the interested parties.

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[1] "Industrial Conciliation," by H. Crompton, p. 10.

But though it would be impossible and irrational to lay down a necessary historical order of development, it will be convenient, as it has been found to be in analogous cases, to construct a theoretical order, and to endeavour to group our consideration of the different varieties of conciliation round some central points. We may then distinguish, roughly and hypothetically, three stages of development; one, where there is no organised machinery for the settlement of disputes, but merely occasional and irregular negotiation; another, where there is an organised machinery, but wages are settled periodically by definite arrangement; and a third, where wages are regulated automatically by a sliding scale. We must remember of course that these stages overlap one another, and that the distinction between them is arbitrary. But

[2] *E.g.*, the writings of Morgan and McLennan.

with this proviso, we may take for a typical instance of the first stage the negotiations in a recent strike in the shipbuilding industry on the banks of the Tyne and the Wear. For the second stage we may select the board of conciliation and arbitration in the manufactured iron trade of the north of England; and for the third and last stage, the sliding scales in operation in the coal trades of Northumberland and Durham. I have chosen these three instances because I have had more opportunity of acquiring information about them. But they are also very instructive for our purpose, as they are all connected with the same industrial district, and yet exhibit very considerable differences with regard to the question under discussion.

II.

(A). First, then, let us take the case of the shipbuilding strike upon the Tyne and the Wear. Into the details of the question under dispute and the merits of the contentions put forward by the opposing parties, it is not relevant to our present purpose to enter. What we are concerned with is the course of the negotiations which resulted in a final settlement of the quarrel.

At the close of the year 1885, according to the monthly report issued for March, 1886,[3] by the general secretary to the United Society of Boilermakers and Iron Shipbuilders, the shipbuilders throughout the whole of the north-east coast of England gave notice of a "very heavy reduction" in wages applying to all the members of the society in their employment. This reduction affected directly, or indirectly, "more than 8,000" members of the society, and was the fourth which had taken place within two years. A strike thereupon followed, but during the month of January the men opened negotiations with the masters and submitted a proposal, which was however rejected.

Towards the end of the month, again, rumours began to spread of fresh negotiations. It is worthy of notice in passing, that inasmuch as the district had not as yet been formally put upon the "strike allowance," as it is termed, by the council of the society, the negotiations for the settlement of the dispute rested entirely with the workmen immediately concerned, and the council could only act "upon special invitation" instead of taking complete control over the matter, as it would have done supposing the district had already been receiving "strike allowance."[4] The men, indeed, were apparently beginning to suffer "considerable" pecuniary distress, and their committee issued a circular appealing for "sympathy and support" to the various trade societies in the district. In this circular they were careful to draw special attention to the fact that they had offered a proposal for the settlement of the dispute to the employers before making any appeal for pecuniary aid.[5] A mass meeting of men representing the different lodges of the society on Tyne-side, and numbering some 700 or 800, was held at Wallsend on the 1st of February;[6] and though the proceedings were private, it was generally understood that the whole question of the reduction of wages was thoroughly discussed. On 5th February[7] a meeting of the Tyne and Wear shipbuilders was held at Sunderland, and a deputation from the Boilermakers' society—comprising four representatives from the Tyne and four from the Wear, together with two "delegates"—was present. The views of the opposing parties were interchanged and their relative position explained. The deputation then withdrew, and on being readmitted was informed that the employers were "prepared to take into favourable consideration "any modification which the men" might "propose of the reduc-"tion already notified." A strong recommendation was offered to the effect that deputations of the men should be invested with full powers to treat for a final settlement of the dispute, and an arrangement was made for a meeting on the following Thursday to receive the reply to the proposal of the employers. The deputation met that evening and discussed the position of affairs, and a Newcastle paper[8] of the next day reported that they were about to submit a proposal to the various districts which might bring about a solution of the difficulty. On Saturday, the 6th of February, the first distribution of "strike-money" took place at Sunderland at the different lodges; for the executive of the society had granted a sum of 5,000*l.* for that purpose to be distributed in weekly allowances of 8*s.* a man.[9] On 10th February, the evening before the adjourned meeting of the employers, a meeting of the representatives of the men was held, when the returns from the various lodges with reference to the proposal of the employers were received.[10] The next day the masters met the deputation from the Boilermakers' society, and were informed[11] that not only were the votes of the men opposed to any reduction, but that they also refused to give the deputation powers of negotiation. The employers expressed their "surprise and regret" at a course of action which "virtually closed the door to negotiation;" but, after a private discussion, they themselves offered the men a modification in the proposed reduction, reminding them, through the mouth of their chairman, that for their part they had adopted a "conciliatory attitude" throughout the dispute, that they had asked the representatives of the men "to meet them in friendly "conference" prior to the issue of the notice, and that they had requested them to send a deputation to a meeting even after the men had passed a resolution against the acceptance of "any "reduction whatever." The employers' proposal was again submitted in the usual way to the various lodges; and it seems that, while some of the lodges were opposed to any reduction, others—and more especially those on the Wear—were anxious to come to terms.[12] On the 18th the masters again met the representatives of the men, who submitted a proposal for a reduction indeed, but not of the same amount as that demanded by the masters. A long discussion ensued, and ultimately the masters, without accepting the proposal, made a further modification in their terms.[13] Finally, after some further negotiation, the dispute was settled about the end of the month.

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[3] *Cf.* "Newcastle Daily Chronicle," 19th March, 1886.

[4] *Cf.* "Newcastle Daily Chronicle," 1st February, 1886; "Newcastle Daily "Leader," 1st February, 1886.

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[5] *Cf. op. cit.*

[6] Ibid., 2nd February, 1886.

[7] Ibid., 6th February.

[8] *Cf. op. cit.*

[9] *Cf op cit.*, 8th February.

[10] Ibid., 11th February.

[11] Ibid., 12th February.

B (i). The history of this dispute is not without its hopeful signs, although we cannot but echo the words of the general secretary of the Boilermakers' society, when he states, in his monthly report for March, that it was "a pity that the compromise "was not come to before these weeks were spent in idleness."[14] What we have to remember is that it is something gained to mitigate the bitterness of these conflicts; and there can be no doubt that, if a comparison were instituted between the history of such a strike as this, and the history of the strikes of some thirty or forty, perhaps even some ten or twenty years ago, there would be abundant evidence to prove that a considerable change had taken place in the nature of these conflicts, and that many of their old barbarous accessories had passed away. Mr. Knight himself remarks in the report to which previous reference has been made, that "of this strike or lock-out, or whatever it may be called, it "must be said that it has been conducted in the most excellent "spirit possible on both sides. There has been little recrimination. "There has been no violence."

Nor is this statement by any means exaggerated. From both sides we have an expression of reluctance at the occurrence of the dispute. To quote Mr. Knight again, he states that "these "violent stoppages may be necessary, but they are the wars of "the industrial world, and should never be lightly resorted to." And in his annual report for 1885,[15] he notices the fact, that

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[12] *Cf.* "Newcastle Daily Chronicle," 18th February.

[13] *Cf.* "Newcastle Daily Leader," 19th February.

[14] *Cf.* "Newcastle Daily Chronicle," 19th March.

[15] *Cf.* Annual Report for 1885 of the United Society of Boilermakers and Iron Shipbuilders, p. xi.

3,593*l.* has been spent during the year on disputes, and while declaring that "these civil wars are necessary evils sometimes," he adds, "we are always favourable to peace with honour." On the part of the masters we have the statement made by their chairman at the meeting of 11th February, to which reference has already been made, and throughout the course of the negotiations they again and again express a desire to arrive at a peaceful settlement.

On both sides again there is evidence of a wish to be accurate in the statements made and the contentions put forward. During the continuance of the dispute a letter appeared from Mr. Knight in the "Newcastle Daily Leader" of 17th February, with reference to an extract from his monthly report for February, which had been published in that paper, and contained an assertion which he had since discovered to be incomplete, and therefore to reflect unfairly upon the conduct of the managers of a certain shipbuilding firm. In this letter he asks to be allowed to supplement the former statement, "as," he says "we should be very sorry to say anything, or make a partial statement, that might in the "slightest degree reflect unjustly on the officials of the firm at "Elswick." The masters in like manner are reported by the "New-"castle Daily Leader" of 19th February to have expressed a willingness, at a meeting of masters and representative men, "to "allow any chartered accountants, mutually agreed on, to inspect "their wages-books and verify" the "averages" which they had put forward at a similar meeting on the 11th.

(ii). Of course in all such disputes we must expect to find irritation and friction on either side. The fact cannot be disguised that in such a dispute as this we have an industrial war; and it is because these contests, like wars, have an inevitable tendency to engender bitterness of feeling, and to stereotype an attitude of mutual hostility, that they are to be so deeply regretted. Mr. Knight's monthly report for March, to which we have so often referred before, supplies a very apt illustration of this point. In reading his account of the dispute, we cannot fail to be reminded again and again of the analogy between a strike and a war. We have, first, looking at the matter from his point of view, the formal declaration of war, in the notice of reduction issued by the employers. Then follows an estimate of the resources of either side. "The employers from the outset had circumstances considerably in "their favour, so far as *mere fighting* went. Work was not very "plentiful. The most important work was work that could wait, "and in the chief contracts strikes were provided for. The "stoppage to them caused little inconvenience, and when it was "over work would be all the brisker . . . . . . They had the

" strongest *battalions*, they had hunger on their side." Then he examines the position of his own side. "The members, on the " other hand, had all the prevailing circumstances against them. " An exceedingly large number are without employment of any sort. " Many families are without food. The season has been painfully " severe, and all funds available for support have been strained to " the utmost." And then after remarking that "it was inevitable " that there should be a compromise in the end, unless the men " were to yield the whole," he states the essence of the matter in a single sentence. "They have made a very *gallant stand*, looked at " purely as a stand for better terms, and they have *won half the* " *battle*."[16] Here then we have a description of an industrial war, and we may expect to find evils somewhat analogous to the evils of war resulting therefrom.

(α) Now it would be easy to draw up a lengthy catalogue of the possible evils occasioned by these conflicts. It is a very common practice to calculate on the one side the sum which these strikes entail in the loss of wages during the stoppage of work, and on the other the sum gained in the shape of an increase, or a prevention of a reduction, of wages; to construct an imaginary balance sheet; to prove incontestably that the former of these two sums is very much larger than the other, and then to throw this in the teeth of the workmen, and to point out in a manner forcible rather than persuasive, the unmistakable error of their ways.

But such a balance sheet is very unsatisfactory. It is difficult to arrive with even approximate accuracy, at an estimate of either side of the account. To the loss of wages we have to add the possibility of falling into debt, which it may take a lifetime to redeem; the departure it may be of trade from the district, and as a consequence of this, the permanent curtailment of employment; and last, but by no means least, the abiding injury inflicted upon body, mind, and character, by irregular habits, and, in all likelihood, irregular meals. On the other side of the account there are moral considerations which do not admit of reduction to a pecuniary standard, and a workman of the north of England once remarked to me, that he thought that any of the privations he might have endured during the famous Nine-hours' strike, were abundantly compensated by the advantages of the increased leisure and independence he had since enjoyed.

From a strictly economic point of view again, it is now generally allowed that it is dangerous to conclude that a strike is in all cases prejudicial even to the permanent economic interests of the workmen. For the increased efficiency of labour due to better health, to better education, to better character, may conceivably compensate for the diminution of the working hours of a day, or for increased wages, or for temporary stoppage of production; and the growth of that capital which is so necessary to industry may depend upon the willingness to save, not merely of employers—who indeed may conceivably habituate themselves to a lower rate of interest and to smaller profits—but also of workmen, who may find in their larger wages at once greater ability and greater inducement to save. Here then also there are moral elements which baffle exact calculation. The one thing which does seem certain is this, that an industrial conflict, like a war between nations, does leave behind feelings of bitterness, and does by its very nature prevent the growth of harmonious and amicable relations. These are certain calamities and indisputable evils. And hence, if there is to be war, it is eminently desirable that there should also be negotiation.

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[16] The *italics* are my own.

In these negotiations, indeed, we must expect to find some irregularity of working, and to see some irritation displayed. For we must remember that in such cases as that we have just described, the negotiation is negotiation between two disputants who are actually engaged in a fray where vital interests are at stake; who have probably not a little soreness of feeling towards one another; who in all likelihood are suffering pecuniary injury from the conflict, and who are not habituated, as they would be were there a regular board of conciliation, or traditional method of arbitration recognised in the industry, to meet one another round the same table, and to adjust their differences by formal argument or mutual concession. There is, in fact, no common basis from which to start; and the matter is rather to be settled by the estimate which either side forms of the comparative strength of its opponents and itself. Nor, be it noticed, does there seem to be any economic standard which can be called into requisition in such disputes, for as Professor Sidgwick[17] has pointed out, where two combinations meet one another, political economy is perforce silenced. Each side then is determined to secure all it can; each side is naturally suspicious of the attitude of the other. The hopeful sign is this, that the parties are willing to meet one another, and that they are desirous of arriving at a settlement.

(β) And here we must in the last place notice a point to which we shall again have to draw attention when we consider other forms of conciliation. It is of little use for negotiations to be commenced unless the negotiators are invested with plenipotentiary authority, or are at any rate the accredited representatives of the opposing forces. In the shipbuilding strike which we have just examined, there was one fact of a very melancholy character which could not but impress itself forcibly upon the mind of the observer. The labourers in the shipbuilding yards, the "helpers" as they are commonly called, had no part or lot in the strike, and yet with the suspension of industry they were thrown out of employment. It need hardly be said that the resources on which they could fall back were far more slender than those of the skilled workmen. A system is in vogue, with few exceptions, in the yards on the Tyne and the Wear, by which the "platers," &c., are paid by the piece, and the "helpers" by the time.[18] And thus during the halcyon days of prosperity in the shipbuilding trade—and even in brisk times we must remember the average working days in a week do not seem to be more than four—the platers might earn high wages, and yet the helpers might derive little benefit. For the platers working by the piece, might stay away from the yards during some days of the week, trusting to make up for the time lost by extra-hard work upon the remaining days, but the helpers would lose their time-wages during the days when the platers were idle, and would have to take their share of the high pressure speed on the other days. An attempt was made some few years ago by a Mr. Lynch, who was himself at one time a labourer in the yards, to organise a union among "the helpers," and to obtain an alteration of the system; but the attempt had only a temporary success, partly, it seems, from the natural want of cohesion which is so characteristic of unskilled labourers, and partly also it is to be feared through the opposition of the members of the Boilermakers' Society, and the importation of labourers from outside to take the places of the recalcitrant helpers.[19] And so, when the time of the strike came, the helpers were thrown out of employment, with little, if any, resources to meet the distress by which they were confronted; and to add to the hardness of their position, they were apparently deemed ineligible for relief from the general distress fund set on foot during the winter in the city of Newcastle, because they were regarded as concerned in the strike.[20] In one district, however, at least, they organised a committee, and appealed to the public for pecuniary aid. But the fact which is so forcibly impressed upon the mind is this, that during all the negotiations between the shipbuilders and the members of the Boilermakers' Society, the helpers seem to have been entirely unrepresented. Had they possessed an organisation they could hardly have been placed in this melancholy position.

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[17] *Cf.* "Principles of Political Economy," II, X, 1, p. 349, foot note; 2, p. 355.

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[18] *Cf.* "Industrial Remuneration Conference Report," pp. 114—118, paper on Skilled and Unskilled Labour in the Shipbuilding Trade, by J. Lynch.

[19] *Cf. op. cit.*, pp. 117 and 118. This account is also based in part upon a personal interview with Mr. Lynch.

[20] *Cf.* "Newcastle Daily Leader," 1st, 2nd, 6th, and 8th February, 1886.

It is in this way, moreover, that increased organisation seems to have paved the way for increased harmony. A manufacturer of the north of England informed me[21] that, although he was not expressing the opinions of his class, yet he personally thought that employers had reason to be thankful to trades unions. He was not alluding, indeed, to the small unions, but to the large well-organised unions. For now, when disputes occurred, in small matters as in great, employers had not to deal with a large body of men of conflicting views, and to fear that, when they had arranged a settlement with some members of the body, they might find themselves still in conflict with others. But they now had the advantage of meeting a few representatives, and they knew that if they could arrive at a settlement with them, their difficulties would be over for the time.

And there are collateral advantages attaching to this. In a large well organised union it is probable that the best men will come to the front, and that they will bring the calmest heads and the widest experience—and withal a natural anxiety to relieve the strain occasioned by a dispute to the funds of the society—to bear on the negotiations into which they enter. It may be, indeed, and sometimes is, the case, that under the thoroughly democratic constitution which is characteristic of most trades unions—with the habitual reference of questions to the decision of the whole body—the advice of the officials may be overborne by an impulse of prejudice or passion. But the fact still remains that the opinions of the officials are, in the nature of things, likely to have considerable weight, and that the course of the negotiations will, in all probability, run more smoothly when the employers meet the same, or very nearly the same, representatives on each occasion. The employers on their part, even if they are not regularly combined together into an association, are generally, in comparison with the men, so few in number, that they can readily unite together in such an emergency as a strike.

It may then perhaps be the case that the "principle of degene-"ration," by which, according to Jevons,[22] associations of men are subject to a tendency to fall away from their original purpose, may, in the case of trades unions, assume this pacific form. It may be that, as they have undoubtedly contributed to the *education* of the workman, in the broadest sense of the word, by acquainting him with some of the conditions of business and teaching him the responsibilities of official position; as they have developed their function as friendly societies (a function, be it remembered, which was originally in some sense forced upon them in order to escape the disabilities of the law), and developed it to such a degree that it now occupies the most prominent position in their expenditure, so that, in the years 1876-80,[23] 1,393,466*l.* was spent on benefit purposes by seven of the most representative unions, as compared with 158,361*l.* on strikes; so in the future they may be chiefly known as the confessed promoters of peace. Mr. Frederic Harrison,[24] speaking at the Trades Union Congress of 1883, has called attention to a significant passage in the report of the parliamentary committee for that year: "The measure of value of "a strong Union lies not so much in the conduct of successful "strikes, as it does in the number of disputes its moral strength "prevents."

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[21] *Cf.* Report of Royal Commission on the Depression of Trade for a similar testimony from a shipbuilder on the Clyde. *Q.* 12018.

[22] *Cf.* "The State in Relation to Labour," by W. S. Jevons, pp. 124—127.

III.

We may now pass on to the consideration of what we have distinguished as the second stage in the peaceful settlement of industrial disputes. The uncertainty and friction which must almost of necessity attach to such occasional and irregular negotiations as those we have described in connection with the shipbuilding industry of the north, are chiefly due to the fact that the two parties are not accustomed to meet one another round a common table, and that they therefore come to the negotiations with a natural suspicion of each other's attitude and arguments. But if there is a regular board of conciliation in existence in the trade, or even if there has grown up a traditional habit of referring disputes to arbitration, then a presumption is established in favour of mutual concession or peaceful argument in lieu of a resort to actual force. There is an organised machinery in existence, and there is a habit, which may become almost instinctive, of using this machinery. The two parties are accustomed to meet one another, and to endeavour to oppose argument to argument rather than force to force; and they can scarcely pursue this practice without learning to recognise the difficulties which either side may have to confront, and without entering, to some extent at least, into the position of their opponents.

A. The board of conciliation and arbitration in the manufactured iron trade of the north of England, which we propose to take as the typical instance of this second stage, has now been in existence for some seventeen or eighteen years. Mr. Crompton[25] has drawn very marked attention to its formation and working. He maintains that there is no portion of industrial history which is more interesting than the improvement effected in the relations of masters and men in the manufactured iron trade of the north of England. For here there have been most exceptional difficulties to overcome.

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[23] *Cf.* "Contemporary Review," September, 1883; "The Work of Trade "Unions," by G. Howell. On one day during the winter of 1885-86, the Northumberland Miners' Association distributed 3,561*l* in relief to 8,398 miners in thirty collieries. *Cf.* "Newcastle Daily Chronicle," 8th March, 1886.

[24] *Cf.* "Contemporary Review," October, 1883. "The Progress of Labour," by F. Harrison. *Cf.* also "Trade Unions," by W. Trant, pp. 100—106, and Typographical Association's Rules IV, XVII, XVIII.

(i). In the first place the trade itself has been subject to considerable fluctuation. Mr. Spence Watson, who has sat as arbitrator on four occasions, and has given a succinct but exhaustive account of the history of the board in a paper read before the Barnsley Chamber of Commerce,[26] writes that since the formation of the board "it has been tested in every way. Prices have gone " up to their highest point and down to their lowest. There have " been 'booms' and intense depressions. Demand has far exceeded " supply, and has died away." The shorthand writer's reports[27] of proceedings at the different arbitrations supply abundant confirmation of this, and in the employers' rejoinder,[28] before Sir Joseph Pease, in November, 1882, we find the significant assertion that "anticipations in connection with the iron trade are always " doubtful, and the foresight of the most experienced is of little " real use." The following table, which illustrates the greater part of the history of wages and of arbitration in the trade, proves that this language is by no means exaggerated, and we may fairly say that the board of conciliation in the manufactured iron trade of the north of England has had as serious difficulties to confront in the way of changes in the conditions of industry as could well be imagined :—

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[25] *Cf.* "Industrial Conciliation," p. 49.

[26] *Cf.* Lecture on Boards of Arbitration and Conciliation and Sliding Scales, by R. Spence Watson. Extracted from the "Barnsley Chronicle" of 20th March, 1886.

[27] As frequent reference will have to be made to these reports, it will abbreviate the notes to distinguish and refer to them by numbers as below :—

I. Arbitration before Mr. Dale in July, 1877.
II. „ Shaw-Lefevre in December, 1878.
III. „ Dale in August and October, 1879.
IV. „ J. W. Pease in April, 1882.
V. „ Sir J. W. Pease in November, 1882.
VI. „ Mr. Spence Watson in January, 1884.
VII. „ „ April, 1884.
VIII. „ „ November, 1884.
IX. „ „ October, 1885.

All these reports are printed and published at the Ironworkers' Association Office, Grange Road, Darlington, and I have to thank the secretary of the association, Mr. Edward Trow, for kindly supplying me with copies.

[28] *Cf.* V, 7.

TABLE I.

Number of Settlement.	Date of Settlement.	Occasion and Nature of the Wages Settlement.	Duration of Settlement.	Average Selling Price of Iron.[1]	Amount over Shillings for Pounds[2]	Wages Arranged[3] (Long Weight).	Percentage of Advance or Reduction.
				£ s. d.	s. d.	s. d.	Per cnt.
—	1869[4].........	—	Jan.—April inclusive	—	1 9	8 -	—
1	May, 1869...	Mr. R. Kettle's award	May—Dec. inclusive	6 11 3[5]	2 6[11]	8 6	+ 5[6]
2	Jan., 1870 ...	Mr. T. Hughes' award	1870	7 – 11 25[7]	varying to	9 6	+10
3	Feb. 6, 1871	Mr. T. Hughes' award[9]	Jan. 1—June 30, 1871	7 – 8[8]		9 –	– 5
4	July 25, 1871	Mr. T. Hughes' award (in London). Workmen claim advance	From July 1, 1871 ...	7 2 0·25[10]		9 6	+ 5
5	Oct. 17, 1871	Employers give 5 per cent. advance on condition of acceptance of sliding scale	Until March 31, 1872	—[12]	1 9	10 –	+ 5
6	Oct., 1871 ...	Sliding scale arranged by Mr. D. Dale[13]	For 3 months ending June 30, 1872	7 16 6·15[14]	2 9	10 6	+ 5
7	July 22, 1872	The figures for the three months ending May 31, 1872, gave an advance of 7½ per cent.; but a few days after an advance of 20 per cent. was given to the men in Staffordshire, and this created dissatisfaction in the North of England. At a meeting of the Board the employers gave an advance, in addition to the 7½ per cent., of 12½ per cent., thus equalising the rates with those in Staffordshire[15]	To March 31, 1873 ...	8 11 6·82	4 –	12 6	+20
8	April, 1873	Mr. R. Kettle's award at Saltburn[16]	To Sept. 30, 1873......	10 12 10	2 6	13 3	+ 7½
9	Oct., 1873 ...	Mr. R Kettle's award at Durham. Employers claim reduction of 12½ per cent.	Till end of 1873	11 19 3·63[17]	—	13 3	=[18]
10	Dec. 19, 1873	Conference of employers and men from north of England and Staffordshire at Birmingham, and mutual reduction of 7½ per cent.[19]	Jan. 3—April 4, 1874	11 15 8·42	—	12 6	– 7½
11	April 10, 1874	Meeting of the same at York, and reduction of 10 per cent. agreed upon, after which Derby sliding scale to come into operation[20]	April 4—July 4, 1874	11 18 3·38	—	11 6	–10
12	1874[21]	Derby sliding scale	For 3 months ending Sept. 30, 1874 ...... Dec. 31, 1874 ...... March 31, 1875 ... June 30, 1875	 10 18 11·78[22] 9 19 1·08 9 1 5·13 8 14 3·09	 – 9 – 9 – 9 – 9	 11 9 10 9 9 9 9 6	 + 2½ –10 –10 – 2½
13	July 15, 1875	Mutual arrangement at Darlington between employers and men of north of England[23]	Till end of 1875	8 3 1·23	– 9	9 –	– 5
14	Jan. 18, 1876	Messrs. Williams and Mundella's award[24]	Jan. 17—Aug. 17, 1874	7 10 4·09	– 9	8 3	– 7½
15	Aug. 2, 1877	Mr. Dale's award at Darlington. Employers claim 10 per cent. reduction	Till Dec. 31, 1877[25]...	6 17 1·43	1 6[26]	8 3	=
16	April 13, 1878	Mr. Dale's award[27]	—	6 7 4·01	1 3	7 6	– 7½

TABLE I—*Contd.*

Number of Settlement.	Date of Settlement.	Occasion and Nature of the Wages Settlement.	Duration of Settlement.	Average Selling Price of Iron.	Amount over Shillings for Pounds.	Wages Arranged (Long Weight).	Percentage of Advance or Reduction.
				£ s. d.	s. d.	s. d.	Per cnt.
17	Jan. 13, 1879	Mr. Shaw-Lefevre's award at Darlington. Employers claim reduction of 5 per cent.[28]	For 2 months, and thenceforth subject to 1 month's notice	6 – 5·37	1 –	7 –	– 5
	Sept. 18, 1879	Mr. Dale's award in the matter of a special claim for reduction of 15 per cent. in the wages of shinglers, rollers, heaters, and shearmen [29]	—	—	—	—	–12½
18	Sept. 18, 1879	Mr. Dale's award at Darlington. Employers claim reduction of 5 per cent.[30]	Till December 21, and then subject to 1 month's notice	5 7 7·41	1 6	7 –	=
19	Dec. 22, 1879	Employers concede advance of 12½ per cent.[32a]	Till May 1, 1880	5 5 –[32b]	3 –	8 3	+12½
20	Dec. 22, 1879	Sliding scale fixed by award of Mr. Dale (April 23, 1880) on basis of 1*s.* 6*d.* over shillings for pounds.[31] Sliding scale was to last for two years, May 1, 1880—May 1, 1882	For 3 months ending				
			July 31, 1880	6 2 11·45[32]	1 6	7 9	– 5
			Oct. 31, 1880	6 10 8·90	1 6	8 –	+ 2½
			Jan. 31, 1881	6 8 0·01	1 6	8 –	=
			April 30, 1881	6 4 3·96	1 6	7 9	– 2½
			July 31, 1881	6 3 7·45	1 6	7 9	=
			Oct. 31, 1881	6 2 1·74	1 6	7 6	– 2½
			Jan. 31, 1882	5 19 8·04	1 6	7 6	=
			April 30, 1882	5 18 11·18	1 6	7 6	=
21	Feb. 6, 1882	At meeting of Board by mutual arrangement. Advance of 7½ per cent. conceded [33]	Till April 29, 1882 ...	5 18 11·18	2 3[34]	8 3	+ 7½
22	April 29, 1882	Mr. J. W. Pease's award at Middlesbrough.[35] Workmen claim advance of 7½ per cent. for current quarter, and arbitrator is empowered to settle wages from May 1 to October 28, 1882. He awarded:—	Till Oct. 28, 1882......	6 2 11·23	—[32c]	—	
		May 1—July 31, 1882. No alteration	May 1—July 31, 1882	—	—	8 3	=
		August 1—September 16. 2½ per cent. advance	Aug. 1—Sept. 16, 1882	6 6 11·97	—	8 6	+ 2½
		September 16—October 28. 2½ per cent. advance	Sept. 16—Oct. 28, 1882	—	—	8 9	+ 2½
23	Nov. 23, 1882	Sir J. W. Pease's award at Middlesbrough. Workmen claim advance of 7½ per cent., and employers a reduction of 7½ per cent.	Till last Saturday in February, 1883, and then subject to 1 month's notice	6 8 6·49	1 9[36]	8 3	– 5
24	Mar. 19, 1883	Durham agreement between master and men, by which existing rates of wages were continued until September 29, and then a sliding scale was to come into force similar to the former one	Till Sept. 29, 1883 ...	6 6 –	2 –	8 3	=
25	Mar. 19, 1883	Sliding scale as above [37]	For 2 months ending[38]				
			Nov. 30, 1883	6 2 4·08[39]	1 6	7 6	– 7½
			Jan. 31, 1883	6 – 6·66	1 6	7 6	=
26	Jan. 24, 1884	Mr. R. S. Watson's award at Newcastle. Employers claim reduction of 5 per cent.	For 3 months ending March 29, 1884	5 17 11·34	1 6[41]	7 6[40]	=
27	April 18, 1884	Mr. R. S. Watson's award at Newcastle. Employers claim reduction of 10 per cent.	April 12—June 28, 1884	5 13 7·20	1 6[41]	7 3	– 2½

TABLE I—*Contd.*

Number of Settlement.	Date of Settlement.	Occasion and Nature of the Wages Settlement.	Duration of Settlement.	Average Selling Price of Iron.	Amount over Shillings for Pounds.	Wages Arranged (Long Weight).	Percentage of Advance or Reduction.
				£ *s.* *d.*	*s.* *d.*	*s.* *d.*	Per cnt.
28	June 9, 1884	Mutual arrangement between employers and men.[42] Employers claim reduction of 10 per cent.	For 3 months to September 27, 1884	5 8 11·41	1 6[45]	7 -	− 2½
29	Dec. 1, 1884	Mr. R. S. Watson's award at Newcastle. Employers claim reduction of 5 per cent., and workmen claim advance of 5 per cent.	Sept. 27—last Saturday in Jan., 1885	5 1 8·57[43]	—	7 –[46]	=
30	Oct. 28, 1885	Mr. R. S. Watson's award at Newcastle.[44] Employers claim reduction of 7½ per cent.	For 3 months	4 17 7·75[47]	1 9	6 9	− 2½

NOTES *to preceding* TABLE.

[1] The average selling price is based upon the prices of bars, angles, plates, and rails.

[2] The custom of the trade is to pay shillings of wages (and a certain amount over) for pounds of prices. *Cf.* II, 9.

[3] There are two weights: imperial ton = 2,240 lbs., and long weight = 2,400 lbs., and the custom in the trade was to pay by long weight; and even when in 1879 they were compelled by Act of Parliament to pay imperial weight (*cf.* II, 1), still the calculations continued to be based upon long weight. *Cf.* VI, 4.

[4] This was the year in which the Board was formed. The figures from this time to January 18, 1876 (inclusive), are based partly upon the figures supplied to Mr. Dale as arbitrator in July, 1877, and extracted from the minutes of the Board. *Cf.* I, 18.

[5] The average selling price for the previous yearly period, and based upon the statements of orders upon the books, and the prices to be realised from them. These returns were not subjected to verification by an accountant until February, 1872. *Cf.* I, 11, 15.

[6] 5 per cent. advance in other tonnage rates = 6*d.* per ton on puddling. *Cf.* II, 10; VI, 3.

[7] *Cf.* I, 15.

[8] Prices on books, but the award, according to the men (*cf.* II, 7), was really based on the prices quoted in the "Iron "and Coal Trades Review," which averaged 6*l.* 12*s.* 6*d.*

[9] Against this award the men protested. *Cf.* III, 20.

[10] *Cf.* II, 7.

[11] *Cf.* statement in Mr. J. W. Pease's award. IV, 24.

[12] The principle was now adopted of fixing the rate of wages in accordance with the returns of selling prices in the past. *Cf.* II, 7.

[13] The wages for the ensuing quarter were to be based upon the selling prices of the preceding quarter.

[14] The returns of Mr. Waterhouse, the accountant to the Board, here begin. These are the figures for the three months ending February 28, 1872, and are obtained by examination of the employers' books according to a method fully described below. *Cf.* VI, 7.

[15] *Cf.* IV, 7.

[16] On this award the men base a contention that as wages have not followed prices in this case up to their highest point, so they ought not to follow them down to their lowest point. *Cf.* IV, 7.

[17] The prices were also placed before the arbitrator of the returns up to September 30, and = 11*l.* 12*s.* 5·99*d.* *Cf.* IV, 7.

[18] = signifies that no alteration was made by the arbitrator. *Cf.* IV, 7.

[19] A basis for a sliding scale for the two districts was also agreed upon, and a joint committee appointed to arrange details. *Cf.* IV, 7.

[20] Meetings of the joint committee were held at Derby and London. At York the North of England employers at first demanded a reduction of 20 per cent., but the Midland employers suggested a compromise of 10 per cent. *Cf.* IV, 8.

[21] The figures from this point to December 31, 1881 (February 6, 1882), are based partly on those placed before the arbitrator by the employers on January 4, 1884 (*cf.* VI, 3 and 4), and so far as mere accuracy goes, recognised as correct by the men. *Cf.* VI, 4.

[22] Based upon the prices for the three months ending May 31. Obtained in a manner described below. *Cf.* I, 11.

[23] At a meeting at Newcastle on March 6, 1875, the North of England employers resolved to give notice of the discontinuance of the scale after the 30th of June following. I, 18. The masters say this was necessitated by the decline of the iron rail trade. I, 11.

[24] At this arbitration a single umpire, together with two arbitrators, was appointed, and the award was made by the arbitrators. The award gave great dissatisfaction to the men, and they claimed that a new principle was introduced, *i.e.*, that the decision was based on the depression of trade, and not on the selling prices. *Cf.* I, 6; I, 17; VI, 11.

[25] And thenceforward subject to three months' notice of alteration.

[26] It seems to have been about this figure, and to have risen to 1*s* 9*d.* and 2*s.* *Cf.* VI, 5.

[27] The men contend that this award was not based upon selling prices. II, 6.

[28] The men contend that the words of the arbitrator show that the award was based not upon selling prices, but upon Staffordshire rates. *Cf.* VI, 5. Here too there was a single umpire together with two arbitrators. VI, 11.

[29] Some doubt was felt as to the exact interpretation of the award, and Mr. Dale was asked his opinion upon the matter in October. At this meeting the nominal 12½ per cent on the gross earnings, and the 8¼ per cent. on the net earnings, was modified to 7½ per cent. (*cf.* III, 21). But the "helpers" still objected, and Mr. Dale sat as arbitrator in a case where the helpers at Consett were specially concerned, on November 29, 1879, and a further modification seems to have

been made (*cf.* IV, 19). An unsuccessful appeal was made to Mr. Dale on November 27, 1880, and to Mr. J. W. Pease on April 15. 1882, to restore this special reduction. *Cf* IV, 19 (= 22 *infra*).

[30] This award established no "permanent" relation between selling prices and wages (*cf.* III, 15).

[31] In the previous negotiations the employers offered shillings for pounds, and the men claimed 1*s.* 6*d.* The employers then advanced to 1*s.* 3*d.*, and the decision between this and 1*s.* 6*d.* as the basis of the scale was referred to Mr. Dale, who fixed it at 1*s.* 6*d.* *Cf.* VI, 4 and 5.

[32] These figures are for the quarter ending March 31, 1880, &c., and so on throughout the scale. *Cf.* VI, 3.

[32a] *Cf.* IV, 9. Given in consideration of the American boom, and in anticipation, and to induce the acceptance of the sliding scale, but not "justified" by actual results. IV, 11, 24; VI, 10, 14; VII, 9.

[32b] *Cf.* VI, 13.

[32c] The amount of shillings for pounds would apparently be for No. 1 in the table 2*s.*; 2, 2*s.* 6*d.*; 3, 2*s.*; 4, 2*s.* 6*d.*; 9, 1*s.* 3*d.*; 10, 9*d.*; 11, 6*d.* below shillings; 22, 2*s.* above shillings, 2*s.* 3*d*, 2*s.* 6*d.*; and for No. 29, 2*s.* The general principle on which the calculation is made is seemingly of the following nature: for every pound, one shilling; for every quarter of a pound (*i.e*, 5*s.*), a quarter of a shilling (*i.e.*, 3*d.*). Until prices have reached the half-crown, coming half way between the 5*s.*, wages are calculated on the basis of the previous 5*s.*, but when prices have passed beyond the half-crown, on the succeeding 5*s.* Thus, on the basis of 1*s.* 6*d.* over shillings for pounds, 5*l.* would give 6*s.* 6*d.*; 5*l.* 5*s.*, 6*s.* 9*d.*; 5*l.* 10*s.*, 7*s.*; 5*l.* 1*s.* 6*d.*, 6*s.* 6*d.*; 5*l.* 3*s.* 6*d.*, 6*s.* 9*d.* *Cf.* IX, 5. *Cf.* also "Sliding Scales in the Iron Industry," by J. E. C. Munro, p. 19.

[33] The men were dissatisfied with the returns of prices for the quarter ending December 31, 1881, and some of them intimated by notice to the employers their intention of stopping work after January 31, 1882. The Board passed a resolution stating that immediate inquiry should be made into the question of wages, but that all must continue at work. In some cases, however, a stoppage actually took place, and a demand for 7½ per cent. advance was conceded by the Board on February 6.

[34] *Cf.* Mr. J. W. Pease's award. *Cf.* IV, 23.

[35] *Cf.* 29 *supra.* A strike followed this award, but Mr. (then Sir) J. W. Pease was again selected as arbitrator in November. *Cf.* V, 6. The award was partly based on prospective prices.

[36] *Cf.* VI, 6.

[37] Notice was given on November 22, 1883, to suspend the scale on December 29, 1883.

[38] Prices were to be ascertained every two instead of every three months. *Cf.* VII, 6.

[39] = prices for the two months ending August 31, 1883.

[40] *Cf.* VI, 6; VII, 9. [41] *Cf.* VII, 4. [42] *Cf.* VIII, 3.

[43] *Cf.* VIII, 8. The application of the award dated from October 1, and the last ascertainment previous was for July—August, and = 5*l.* 3*s.* 11·09*d.*, but the arbitrator had also before him the September—October returns. *Cf.* IX, 10.

[44] The question of a sliding scale had been discussed since the last arbitration. IX, 4.

[45] *Cf.* IX, 4. [46] *Cf.* IX, 6 and 17. [47] *Cf.* IX, 10.

N.B.—For the compilation of this table I ought to say that *I* am *solely* responsible. Errors of detail may have crept in, and the table is unfortunately not complete in all particulars. But I have endeavoured to secure as much completeness and freedom from error as the examination of the reports of arbitration cases has enabled me to attain, and in a number of instances I have fortunately had the opportunity of copying *verbatim* from these reports. The particular sources of my information on each point are indicated in the preceding notes.

(ii). But the history of the successful working of the board is instructive on several other accounts, and it is hard to suppose that any board of conciliation could have greater difficulties with which to contend than those which have been triumphantly overcome in the case of the manufactured iron trade of the North. And hence we may fairly argue from its undoubted success to the likelihood of equal, and if possible greater, success in other industries and other districts.

Previously to the formation of the board the relations between masters and men seem to have been of the most unfriendly description. The trade itself had been characterised by a development of extraordinary rapidity. The labour, Mr. Crompton[29] tells us, had been chiefly supplied by immigrants from other districts or trades, and among their number were several Irishmen. The sudden increase in the population of Middlesbrough between 1861 and 1871[30] abundantly illustrates this point, and the men employed in the trade were thus to a large extent complete strangers to the masters. This fact alone was of very unfavourable promise for the existence of amicable relations.

The labour again of puddling iron calls for a considerable amount of hard physical toil, and is so exhaustive in character that it is anything but calculated to promote intellectual self-culture among the workmen in their leisure hours. We may readily believe that a puddler, who was asked to speak at a meeting at Sunderland, was expressing a great deal of truth in a small number of words, when he said that he was sorry that he had been asked to speak, because he was "*not educated, but was a puddler*," and the comment of one of the workmen's delegates at the board upon this is very significant, and can hardly be suspected of excessive exaggeration. "Puddlers," he says, "as a class are not "very intelligent, and if they were very intelligent they would "not be puddlers."[31] We need not therefore be astonished, the wonder would rather be that it should be otherwise, if we meet with evidence to which we may again have occasion to refer—of difficulty experienced in some instances by the representatives of the men in obtaining the adherence of their constituents to the decisions of the board. Thus the workmen state before the arbitrator in April, 1882,[32] that "at various times the existence of the "board has been jeopardised, but the loyalty of the majority has "enabled us to be successful." And again,[33] "many times owing "to the action of either employers or workmen, the continuance of "the board has been in great danger." Mr. Trow, the workmen's secretary,[34] urges before the arbitrator at Newcastle, in January, 1884, that he is "often told" that he is an "employer's man," and the employers frankly recognise the difficulties of the position occupied by the representatives of the men. Thus Mr. Whitwell, in July, 1877, says,[35] that he quite admits that there is "an amount "of covert irritation[36] throughout the lodges connected" with the board, and he adds, "we have no opportunity to know exactly "how strong it is, and therefore I feel great sympathy, more than "I would like to express at this table, for the operative members "present at this meeting. They have a great deal to contend with. "Whereas we only represent our individual firms, they speak for "hundreds and thousands of men, who all have something to say "to them when they meet them at their various meetings." The arbitrator himself, who was on that occasion Mr. Dale, says[37] that he believes the difficulties of the workmen have been great in inducing large bodies of men to appreciate the reasons for their conduct at the meetings of the board.

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[29] *Cf.* "Industrial Conciliation," p. 54.

[30] 108 per cent.

But if there are these difficulties connected with the working of the board, the position of affairs previous to its formation was still more unpromising. In 1866 there was a strike and lock-out lasting for some five months, and "producing a great deal of misery on the "one side, and a great deal of poverty on the other."[38] This was followed by an arrangement among the masters for "combined "action," and the formation of a large "guarantee fund," out of which payment was to be made to employers who were "troubled "by strikes," as compensation for any reasonable loss they might thus have sustained. The relations between the two parties, which indeed were far from amicable before this, now became even more unfriendly, and we find more than one allusion[39] in the arbitration reports to this unsatisfactory state of affairs. In 1869, however, steps were taken which led to the formation of a board of conciliation and arbitration. A demand for an advance in wages had been made by the men, and their representatives met the masters at a conference, and it was as the outcome of this conference that the board was established. The plan on which it is formed is described in detail by Mr. Watson in the pamphlet to which we have referred,[40] and in its broad outlines it may be said, if we except the absence of a legal character and of legal sanctions, to resemble the constitution of the French and Belgian *conseils de prud'hommes*,[41] and may be taken as a type of most, if not all, of the boards of conciliation and courts of arbitration established in this country.

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[31] *Cf.* IX, 18. *Cf. contra*, VI, 12.
[32] *Cf.* IV, 6.
[33] *Cf.* IV, 16.
[34] *Cf.* VI, 19.
[35] *Cf.* I, 17.

[36] This feeling seems to have been occasioned during a special dispute with a particular firm.

[37] *Cf.* I, p. 18.

B (i). Now it is I think apparent that conciliation is far more satisfactory in industrial matters than arbitration, and that mutual concession is as much to be preferred to authoritative arbitration, even when the reference to arbitration is voluntarily made, as willing arbitration is to be preferred to the compulsion of a legalised tribunal. Even under the French system of legalised arbitration, out of thirty or forty thousand or more cases annually submitted to the *conseils*, some 70 per cent. appear to be settled by the conciliatory action of the "bureau particulier."[42] In the manufactured iron trade of the north of England during the seventeen years of the existence of the board of conciliation and arbitration, the standing committee had, up to the 1st of March, 1886, held 276 meetings, and adjusted nearly 800 disputes, while the board itself had only met 97 times, and in some 17 cases alone had reference been made to arbitration.[43] At the annual meeting of the board held on 1st February, 1886—at which it is worthy of notice that the president expressed[44] a hope that "before long there would be "an organisation in connection with the shipbuilding trades some-"thing like that which existed amongst the iron trade, by which "reference to an arbitrator could be made"—the report for the year stated that "with one exception, the committee had been able "to dispose of all the cases brought before them without the "necessity of calling in the referee."

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[38] *Cf.* II, p. 9.

[39] *Cf.* I, 6; VI, 18.

[40] *Cf.* "Boards of Arbitration," &c., pp. 3 and 4.

[41] *Cf.* "The State in Relation to Labour," by W. S. Jevons, pp. 159 and 160.

[42] *Cf.* Statistical Society's *Journal*, vol. xliii, pp. 35—64, Mr. Bevan's paper on "Strikes of the Past Ten Years," March, 1880.

In Belgium the proportion settled by conciliation appears to be somewhat similar.

[43] *Cf.* "Boards of Arbitration," &c., pp. 4 and 5, and Table I, *supra*.

In the Durham and Northumberland coal trades, where, as we shall see hereafter, sliding scales have been in successful working for some years, the general principle of conciliation and arbitration has been applied during a still longer period, but latterly since the introduction of the sliding scale it is conciliation which has been chiefly employed. In the Durham trade a joint committee of masters and men was formed some fourteen years ago, and is now composed, according to Mr. Watson,[45] of twelve members—six selected by the Durham Coalowners' Association, and six by the Durham Miners' Association—and a chairman chosen annually by the two associations. All disputes arising at particular collieries between masters and men which are laid before the committee, may be settled by its own decision or referred to arbitration; and should the arbitrators disagree about the appointment of an umpire, the selection is to be made by the judge of the Durham county court. A considerable number of cases come before the committee; for even under a sliding scale there are occasions for minor disputes, as wages still vary from colliery to colliery, or even from seam to seam according to the special degree of difficulty of working. In most of these cases, which numbered 390 in the year 1881, and in 1882 amounted to 493, in 1883 to 562, and in 1884 to 629, arbitration is not invoked; and in 1883 only 37 of the 562 cases were referred to arbitration, and 17 were reported upon by persons "nominated to inquire into the facts." In 1884 23 questions were treated in this latter fashion, and 45 were settled by arbitration. In Northumberland[46] also a joint committee was founded upon a similar basis in March, 1873, to discuss "all questions" (according to a statement made[47] at an arbitration in March, 1875)[48] "of mere local importance affecting individual

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[44] *Cf.* "Newcastle Daily Leader," 2nd February, 1886. There is an apparently permanent referee, who is consulted by the standing committee, and an arbitrator may be appointed for special occasions by the board.

[45] *Cf.* "Boards of Arbitration," &c., pp. 6 and 7.

[46] *Cf. op. cit.*, p. 10.

[47] *Cf.* K, p. 6.

[48] We shall have occasion to refer more than once to these cases of arbitration in the Northumberland coal trade; and it will therefore abbreviate the notes if we distinguish the reports (copies of which I owe to the kindness of Mr. R. Young, Secretary of the Northumberland Miners' Mutual Confident Association) as under:—

"pits or portions thereof." Six members of this committee are chosen, as in Durham, by the masters' association (the "Steam "Collieries Defence Association"), and six by the miners' union (the "Northumberland Miners' Mutual Confident Association"). At first, unlike the Durham board, its decision "was not to be final, "but was to take the form of a recommendation," and to be submitted for approval or rejection to the votes of the general body of the trade. But since then the rules have been remodelled, and now, as in Durham, its decision is final. During its existence it has adjusted with very little delay more than 3,000 questions.[49]

Joint committees have similarly been formed in other coal mining districts,[50] as for instance in Cumberland in connection with the sliding scale arrangement of 1882, where the committee consists of four coalowners and four representatives of the men, and a secretary appointed by either side; and in South Wales a joint committee was established in 1875, and consisted originally of five representatives of either side, but the number of this committee has since undergone some modification. The principle of conciliation has also been successfully introduced into other trades, and notably by Mr. Mundella into his own trade of hosiery at Nottingham in 1860. Here, where the board consisted, according to Mr. Weeks,[51] of twenty-one members annually elected, there was a triple provision for conciliation. Endeavours to arrange disputes were to be made in the first instance by the two secretaries. Then the matter was to be brought before a committee of inquiry, consisting of two representatives of either side; and only in the third place, if reconciliation were not previously effected, the board was to decide the question. Should there be disagreement here, provision was made for the intervention of a referee.

(ii). The advantages of conciliation over arbitration, as the evidence we have mentioned abundantly indicates, are in a certain sense obvious, but they will perhaps be brought into clearer relief by the negative method of examining the difficulties and disadvantages attaching to arbitration. It must, however, be premised that it seems to be necessary to make some provision for resort to arbitration. There must be a final court of appeal, though that

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K = Report of Arbitration before Sir (then Mr.) R. Kettle, in March, 1875.
H = „ Lord (then Mr.) Herschell, in December, 1875.
P = „ Sir (then Dr.) Lyon Playfair, in September, 1876.

[49] Mr. Watson says "not more than half a dozen days have been lost through-"out its entire jurisdiction." *Cf.* p. 10.

[50] *Cf.* "Sliding Scales in the Coal Industry," by J. E. Crawford Munro, pp 32, 34 and 35, 37 and 39.

[51] *Cf.* "Report on the Practical Working of Arbitration and Conciliation in "the Settlement of Differences between Employers and Employés in England." By J. D. Weeks, sec. iii, p. 6.

court be habitually kept in the background; for otherwise there will be no way out of a deadlock. Nor must it be forgotten that in cases where there is no permanent board of conciliation in existence it is sometimes found better to end a dispute by reference to a neutral arbitrator.

For an illustrative instance of the necessity of this provision for the occasional intervention of an arbitrator, we may take the lace trade at Nottingham. Mr. Brooksbank, the president of the Lace Manufacturers' Association, and also of the board of conciliation, states, in his evidence[52] before the Royal Commission on the Depression of Trade, that there are three branches in the Nottingham lace trade: the lace used for millinery, dress, and fancy purposes, the lace used for curtains, and the lace used for plain nets; and that there are three corresponding sections of the board of conciliation. Each section meets and arranges the prices to be paid for various kinds of work, and if the members of the section fail to come to an agreement the matter is brought before the whole board. "But," he adds, "one weak point in our "present arrangement is, that if we fail to agree we must either "lock the men out or the men strike;" in fact the men refuse to allow any question to be referred to any "referee."

A way out of a deadlock of this nature may be provided in more than one direction, but in the final resort there must inevitably be a single arbitrator, referee, or umpire. In the manufactured iron trade of the north, if the standing committee fail to come to an agreement, the referee, whose appointment is apparently permanent, is summoned; and in a similar way, if the board cannot agree upon any point, an arbitrator is chosen. In the Durham coal trade questions are sometimes referred by the joint committee to an umpire, and sometimes to persons nominated to inquire into the facts, and before the construction of the sliding scale in March, 1877, disputes about the general rate of wages had for some time been adjusted by arbitration. In the Northumberland coal trade a similar practice has been followed, and like provisions appear to exist in connection with most of the sliding scales[53] which have been put into operation.

If indeed the chairman of the committee or board be invested with a casting vote he has, for all practical purposes, the power of an arbitrator; and in the case of the sliding scale arranged in the year 1877 in the Durham coal trade,[54] the chairman of the joint committee is actually named as umpire in the event of any dispute arising, and should he be unable to act himself, he is to appoint some other umpire in his stead. In the manufactured iron trade of the South Staffordshire district, wages have been arranged by the president of the board since the abolition of the sliding scale in September, 1883;[55] but in this case, on the reconstitution of the board, which was effected some years ago, a provision was made[56] for the election of a president who could take no part in the discussion, but enjoyed the possession of a casting vote. In this way the delay caused by the necessity of specially summoning the referee, on particular occasions when his intervention was required, was avoided; and in addition to the president the board has also a chairman.[57] There seems indeed to be considerable weight in the argument urged by Mr. Mundella,[58] that it is more in accordance with the principle of conciliation, and more likely to conduce to the permanence of amicable relations, if there is discussion at the meetings of the boards and the committees without actual voting. Each party should endeavour to work towards a common unanimous agreement, and then, should this prove impossible, a referee should be summoned who should indeed be a member of the board, but should attend those meetings alone where his presence is needed to adjust a dispute, or, at least, should only intervene where his mediation is required. Mr. Whitwell, the president of the board of conciliation in the manufactured iron trade of the north, who has frequently acted as the employers' advocate at courts of arbitration, states himself[59] before Mr. Watson in April, 1884, that he is "placed in an awkward position in being president of "the board and advocate for the employers as well," and that he "would rather occupy the judicial position of president." And from this we may fairly argue *à fortiori* that a chairman or president of a board who has, unlike Mr. Whitwell, the possession of a casting vote, is better situated if he has no direct interest in the matters he is called upon to decide, and is not an active contributor to the discussions which take place, or the arguments which are advanced.

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[52] *Cf.* Report, *Q.* 6602. Originally there seems to have been a standing referee. *Cf.* "Industrial Conciliation," p. 46.

[53] *Cf.* "Sliding Scales in the Iron Industry." By J. E. Crawford Munro, pp. 29, 35, 38, and 41. *Cf.* also "Sliding Scales in the Coal Industry," pp. 21, 34, 45, 50, and 53.

[54] *Cf. op. cit.*, p. 21.

(iii) (α). Some provision, then, it is clear, for a final appeal to a single individual is necessary. But it seems equally evident that the occasions for such an appeal should be reduced to as limited a number as possible. For there are, as we stated before, several difficulties attaching to arbitration. There is one indeed which is involved, in only a less degree, in conciliation, and that is the possibility that the decision may not be loyally accepted. That this may happen, even in the case of conciliation, is proved by the occurrence of strikes against the decisions of the joint committee in the Durham coal trade. But Mr. Watson states[60] that since the formation of the committee the strikes, which have indeed been only of a local character, have been also "of short duration," and that a "very small percentage" alone have been against the decisions of the committee. "The stoppages of work," he adds, "from whatever cause, have steadily decreased, and were in 1884 "scarcely one half of what they were in 1882." And with regard to the Northumberland committee, he affirms[61] that "its decisions "have scarcely ever been called in question, and no serious opposi- "tion to them has been raised upon any occasion." In the case of conciliation indeed it is very unlikely that adherence should not be given to the decision of the committee or board. For when once the principle has become thoroughly established, the two parties meet prepared to arrive at a mutual agreement, and are ready to give and accept concessions, to discuss arguments with fairness, and weigh them with carefulness and without bias; and they do not come to the meetings of the board or committees with the intention of enforcing at all hazards a foregone conclusion. The spirit in which the decision is obtained is likely to be the spirit in which it will be observed.

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[55] *Cf.* "Sliding Scales in the Iron Industry," p. 17.

[56] *Cf.* "Industrial Conciliation," p. 64.

[57] *Cf.* VIII, p. 14.

[58] *Cf.* "Economics of Industry," by A. and M. P. Marshall, III, VIII, 1. *Cf.* also "Industrial Conciliation," p. 36. In the Nottingham Hosiery Board the chairman had at one time a casting vote, but Mr. Mundella says that this casting vote was always getting them into "trouble."

[59] *Cf.* VII, p. 12.

But in the case of arbitration there is *ex hypothesi* initial disagreement between the two parties, and either side in the nature of things cannot help feeling that its case is the stronger. It is indeed for this reason that the argument sometimes advanced for the legalisation of courts of arbitration has some weight, for the decision of the arbitrator would thus be accompanied by a legal sanction. Under Lord St. Leonards' Act of 1867[62] it might be enforced by proceedings of distress, sale, or imprisonment; and in the Wolverhampton building trades, where a permanent arbitration court for the three trades of plasterers, carpenters, and bricklayers was established by Sir Rupert Kettle,[63] and lasted until the year 1875, when the bricklayers and plasterers seceded in consequence of dissatisfaction felt by the former with reference to a particular award, a code of working rules was drawn up by the representatives of the employers and the employed, and posted in the different workshops. A breach of this code was a breach of contract, and could be legally punished. In the pottery trade, where, Mr. Weeks[64] tells us, there had been no general strike between 1836 and the time when he was writing (*i.e.*, 1878), a clause had been inserted in the contracts for hiring, providing for the reference of disputes to arbitration; and Mr. Mundella's Act of 1872[65] seems to have aimed at an object somewhat similar to this. But there appear to be very powerful reasons for excluding law and lawyers as such from the matter, if there is to be any genuine feeling of conciliation as the result of acts of conciliation. There may however be an agreement of a definite character, binding in honour, whatever may be the case at law, between the two parties to an arbitration. In the manufactured iron trade of the north an agreement of submission has to be signed by the representatives of the employers and the workmen concerned in a dispute, before the standing committee commences its investigation of the affair. And even if such an agreement is not put into writing, it is generally taken for granted, and in the majority of cases the decisions of industrial arbitrators are loyally observed. There are however instances to the contrary effect.

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[60] *Cf.* "Boards of Arbitration," &c., p. 7.

[61] *Cf. op. cit.*, p. 10.

[62] 30 and 31 Vict., cap. 105.

[63] *Cf.* "Strikes and Arbitrations," by R. Kettle, p. 35, &c.

In the manufactured iron trade of the north we find more than one allusion[66] to dissatisfaction felt on the part of the men at the influence of the board of conciliation upon their position as compared with that of the workmen in other districts and trades. A formal protest seems to have been raised against the award of Mr. Hughes in February, 1871, and a successful appeal was made to Mr. Dale in 1879 to explain, if not to reconsider, a decision he had given in an arbitration affecting the wages of special classes of ironworkers.[67] An actual strike, though of a momentary nature, appears to have taken place against the first award of Sir Joseph Pease in 1882,[68] and indeed immediately previous to that award there had been a suspension of work on the part of some of the operatives, in violation it is true of a special resolution of the board, which had not apparently been fully understood, but also it appears in contravention of the habitual and recognised rules.[69] The employers on their part are charged by the operative delegates with infringement of the principles[70] and actual rules of the board, both in meeting[71]—with the best intentions, it is admitted, but still in direct violation of principle—the men who had ignored the authority of the board on this occasion, and pledging themselves, through the mouth of the president, to vote for an advance in wages if the men would on their side resume work; and in enforcing at other times alterations in the conditions of working without allowing the men affected the right of appeal to the board. And Sir Joseph Pease in his award states[72] his opinion that the operatives alleged, as he thought, "with considerable truth, the "fact that their loyalty to arbitration had stood the test better "than had always been the case with some of the employers." But he adds that he "recognised on both sides a strong desire to "do that which was right and reasonable, and abide by the "decision of an arbitrator in whose award one side or the other "might not fully unite, rather than jeopardise the enormous "industries in which they were mutually so greatly interested."

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[64] *Cf.* Report, p. 3.

[65] 35 and 36 Vict., c. 46.

[66] *Cf.* I, pp. 5 and 16; II, p. 16; IV, p. 6; V, p. 3.

[67] *Cf.* III, pp. 17—21; IV, p. 19, &c., and IV, p. 5.

[68] *Cf.* V, p. 6.

[69] *Cf.* IV, p. 7.

[70] *Cf.* VIII, p. 5.

[71] *Cf.* IV, pp. 7 and 8.

And against the facts which we have mentioned above we have to set no little amount of evidence of an opposite character. "The "partial stoppage of works," urges[73] Mr. Trow, the advocate for the men in 1877, "on one or two occasions owing to misunder-"standing, has in the north of England been within the narrowest "possible limits . . . . . and the career of our board has been one "of almost uninterrupted triumph and success." And seven years later, after the board had had to pass through troublous waves, we find him asserting before Mr. Watson in November, 1884, that "during the fifteen years preceding" the previous "December the "board" had "been the most successful institution in settling "wages, locally or generally, of any institution that was ever "established in connection with the trade of this or any other "country." "I challenge," he eloquently adds, "the employers or "any historian to point to a parallel in the history of the trade of "the whole universe, where so many disputes have been settled "amicably, where such a strong confidence has been established "between employers and employed, or where such a spirit of "conciliation has been displayed between employers and workmen, "as has been displayed in this district during the fifteen years of "this board's existence."[74] Nor is this in any sense the language of empty exaggeration; for on the 4th of October, 1881, Mr. Dale was publicly presented with his portrait at Darlington as a testimony to his services in connection with arbitration, and at the gathering of representatives of capital and labour which took place upon that occasion, abundant testimony was borne to the "undeniable success of arbitration in connection with[75] the north of "England iron trade;" and the loyalty evinced both by employers and employed to the principle met with ample recognition.

(β). The second disadvantage attaching to arbitration is closely connected with the first, and it is this: there is necessarily an element of contentiousness in arbitration proceedings. The two parties come before the arbitrator resolved to secure victory if possible, and to prove that the position of the other side is untenable, and that its arguments are inconclusive. But in the case of conciliation they are—or should be—desirous of arriving at a common agreement by means of mutual concession. It is true that the discussion before an arbitrator may be conducted with perfect courtesy, and indeed with few, if any exceptions, it is so conducted. In the Northumberland coal trade for instance we find the two parties commencing their cases with appreciative remarks of their opponents. The owners speak[76] of the miners as forming, "both physically and morally, a most advanced type of "mankind, from which some of our most talented and clever "inventors and senators have been drawn, and from which, with "great skill and judgment, some of the ablest advocates have been "selected that ever represented any body of men." They allude[77] more than once to the friendly relations which have existed in the trade, to the absence of any great strikes, and to the adjustment of difficulties by amicable negotiation and conference; and they express a hope that these relations may continue. The miners, on their side, refer[78] in similar terms to the "tone and spirit" in which the employers' case is advanced before Sir Rupert Kettle, in March, 1875. They accept "frankly, in the spirit in which it is given," the offer of the employers to submit certain accounts to the inspection of the "umpire," and they do not attempt to throw any doubt upon "the mathematical accuracy of the figures given, or to call in question the fairness of the data supplied" to the accountants who have prepared the statement in question. On both sides again there is evidence of a desire to be fair and accurate in their arguments. The owners[79] "have endeavoured to conduct" their "investigations "with perfect fairness and justice to both parties." They "are "willing and wishful and desirous to lay everything fair and "above-board open to" the umpire.[80] The men acknowledge[81] the difficulty the owners may feel in acquainting them with the details of their accounts, and hold that it would be "unjust and "ungenerous not to admit that large sums have been expended by a "majority of the employers in building new houses of a better kind, "and in improving the old houses" provided for their miners[82] and not to take this into account in discussing the monetary value and pecuniary expense of such accommodation. The arbitrators, again, on successive occasions, take the opportunity afforded when giving their awards to recognise the fairness and justice of either side. Sir Rupert Kettle alludes to "the implicit confidence with which "each side has received any verbal statement from the other "during the whole progress" of the arbitration, and to "the thoroughly friendly spirit in which, from first to last, the discus-"sions have been conducted."[83] Lord Herschell affirms that the arbitration "could not possibly have been conducted in a more "excellent spirit or more ably than it was."[84] And Sir Lyon Playfair expresses[85] his "strong sense of the eminent fairness and ability" with which the arbitration "has been conducted on both sides." Similar language is to be found in the awards and utterances of arbitrators[86] in the manufactured iron trade of the north.

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[72] *Cf.* IV, p. 24.

[73] *Cf.* I, p. 5.

[74] *Cf.* VIII, p. 4. *Cf.* also II, p. 4.

[75] *Cf.* IV, p. 6.

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[76] *Cf.* K, p. 2; P, pp. 23, 24, and 82.

[77] *Cf.* K, p. 2; H, p. 6.

[78] *Cf.* K, pp. 42, 56, and 114.

[79] *Cf.* K, p. 13.

[80] *Cf.* H, p. 8.

[81] *Cf.* H, p. 10.

[82] *Cf.* P, p. 19.

But despite of this evidence, it is hardly to be supposed that when either party has pecuniary interests at stake, and on one side at least it may well be that the very means of subsistence are imperilled; when either party is endeavouring, with all the force and abundance of argument that it can command, to convince the arbitrator of the justice of its own contention and the erroneous nature of that of its opponent; and when they both know, as Sir Joseph Pease remarked[87] on one occasion, that somebody must be "hurt" by the award on whichever side it may be—under such a condition of things as this it can hardly be supposed that arbitration is not calculated to excite some contentiousness, and in all probability to leave behind a little soreness of feeling. Either party may, as Sir Joseph Pease adds, learn the difficulties which its opponents have to confront, if it hears those difficulties stated in the strongest terms and enforced with the greatest emphasis at an arbitration court, but in the nature of things it can hardly help feeling that its own difficulties are sterner and more serious. The regular statement then of arguments on either side seems not unlikely to accentuate the grounds of mutual opposition, and the irregular discussion of points which may arise incidentally during the arbitration is calculated to create some feeling of irritation.

(γ). This consideration naturally conducts to another objection. In an arbitration case either side is eager to bring forward any and every argument which is likely to tell for its advantage, and hence the discussion must be carried to a considerable length. This evil may, to some extent, be avoided by the observance of a definite form of procedure, and by the selection of an arbitrator who is thoroughly conversant with the details of the trade. The first of these provisions is generally, if not universally, adopted; and indeed some irritation is felt and some objection raised if any departure is made from the established procedure. The details of the procedure may indeed be varied from time to time, and the court may sit for a longer or a shorter period. But in its broad characteristics it remains unaltered, and in some instances there has been an insistance on rigid and almost pedantic adherence to recognised forms which seems to emphasise the danger, if a legal character were given to these courts, of sacrificing the spirit of conciliation to the letter of legal technicality, and of calling into being a body of professional advocates, whose services would be absolutely needed to understand and handle the precedents which might, in industrial as in other matters, be multiplied on precedents according to the traditional usage of English law. Defined, however, as the procedure is in its main outlines, it is open to variation on points of detail; and even in its broad characteristics it admits of lengthy and almost prolix discussion. And indeed if the real facts of the case are to be brought within the cognisance of the arbitrator or umpire, there must be an elasticity of detail and a possibility of prolonged investigation. Thus Sir Rupert Kettle, sitting as arbitrator in the Northumberland coal trade, insists[88] that the parties to the case have not come there to "reserve or hold "back anything," and he disclaims for himself any intention to give countenance to the theory sometimes propounded that arbitrators' awards are given by "some splitting of the difference," or "softening the way," or "making things pleasant." On his part he requires "to go to the root of the matter minutely as a "man of business before" he gives his "judgment." In a similar spirit Lord Herschell said that[89] he would not "confine" the discussion "in any technical way," but if any fresh point was dealt with at any stage which the other side had not heard before, he "should always desire that the matter should be discussed until "each side had heard all that the other has to put forward." And in the iron trade, Mr. Dale really sums up the matter by saying,[90] "We want to get all the facts out. We don't want to stand on a "mere formality."

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[83] *Cf.* K, p. 129. [84] *Cf.* H, p. 240. [85] *Cf.* P, p. 134.

[86] *Cf.* II, p. 16; IV, pp. 22—24; VII, p. 13; VIII, p. 17, and IX, p. 22.

[87] *Cf.* IV, p. 23.

(1). If indeed the arbitrator is thoroughly conversant with the details of the trade, there is less necessity for elaboration of argument or prolonged discussion. This familiarity with detail may be secured by the appointment of an arbitrator who is himself a member of the trade. To this course, however, it is obvious that there may be objections; for it may conceivably arouse suspicions of bias in the minds of either side; and though these suspicions may be entirely unfounded, yet they are hardly unnatural. For, as Mr. Dale points out,[91] the feelings not merely of the representatives of either party, who may be proof against any tendency to mistrust the arbitrator—who, indeed, in the majority of cases has been selected by a body of which they themselves form part—but the feelings of their constituents also have to be taken into account. The chief difficulties, moreover, involved in the selection of an outsider can be to some extent overcome. In the first place there is the necessity of explaining to him such technicalities of the trade as may be necessary to render intelligible the terminology employed by either side. In the second place he must be acquainted with such of the past history of the trade, and of the proceedings at previous arbitrations, as may enable him to appraise at their proper value the contentions and arguments of either party. Thus Sir Rupert Kettle has to be informed[92] by the Northumberland miners that the underground men are there divided into "hewers" and "off-hand men," and that the above ground men are called "bankmen;" whereas in Staffordshire the latter are termed "banksmen," and the former are classified as "pikemen" and "bandmen;" and Lord Herschell has to be told[93] that there are classes of men employed in and about the mines, who are not connected with the miners' union. And in the iron trade, the president, in opening the proceedings of the board before Mr. Watson, expresses[94] the gist of the matter when he says, "we cannot "expect him (*i.e.*, Mr. Watson) to be so well acquainted with the "details of our trade as one who for years has been intimately "connected with it;" and Mr. Watson himself remarks that this ignorance may "occasion from time to time some slowness" in the proceedings. "I shall require," he adds, "an explanation of "technical terms."

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[88] *Cf.* K, pp. 28 and 37.

[89] *Cf.* H, p. 5.

[90] *Cf.* I, p. 5.

(2). Now these difficulties may possibly be in some measure avoided by the method generally followed in the Northumberland and Durham coal trades, by which either party appoints two arbitrators who are really representative of either side, and generally possess local knowledge, and these arbitrators select an umpire who occupies the position of an independent mediator. Then, as Sir Rupert Kettle puts it,[95] the arbitrators and umpire form one body of five, and the umpire will only step in if the arbitrators fail to agree. Up to this point he merely lends his assistance and counsel to the arbitrators who are the primary judges. This method however does not seem to work with very considerable success, for the arbitrators being representative of either side, do not apparently as a general rule come to an agreement, and the final award is left to the umpire. In the iron trade the men again and again express[96] dissatisfaction with the award given by Messrs. Mundella and Williams, when they sat as arbitrators in 1876. A workman declares[97] before Mr. Dale in 1877 that they had told Mr. Mundella that the "award must come from the umpire and not from "him alone, or from a compromise between him and Mr. Williams." Mr. Mundella, it seems, had asked the operative members of the board to authorise him to effect an amicable settlement of the case, and they had refused; and another of their number maintains[98] before Mr. Watson in 1884 that the arbitrator who represented the masters, Mr. Williams, "contrived to frighten" their own arbitrator, Mr. Mundella. Nor did Mr. Shaw-Lefevre's award give greater satisfaction, although in this case the umpire himself, and not the arbitrators, who were Messrs. Lloyd Jones and Williams, gave the final decision. The men declare before Mr. Watson that, although they had no doubt of Mr. Shaw-Lefevre's "integrity," and loyally adhered to his award, yet they "always felt that had the "secretaries been permitted to be present with the arbitrators "before the umpire in January, 1879, the award would have been "more favourable to the workmen."[99] At any rate they concluded that the old system of a single arbitrator was the better of the two; and in 1882, when the question of reference to arbitration arose, we find[100] that the "operatives expressed themselves strongly in favour "of a sole arbitrator, as against two arbitrators and an umpire," and Mr. J. W. Pease was selected to act in that capacity. These complaints indeed may be said to have been caused by accidental circumstances, and not to affect the essence of the system. But this point is open to question, for there can be little doubt that if avowed representatives of opposing parties sit together upon the same judicial bench, the judgment pronounced must of necessity partake of the nature of a compromise; and when a dispute has passed beyond the stage of conciliation and has reached that of arbitration, additional machinery for effecting a compromise can hardly be said to be located in its proper place. If on the other hand the final decision falls to the lot of the umpire, then the arbitrators might more suitably appear as open advocates than as "quasi-judges." The system, in short, of two or more arbitrators and a single umpire, seems to be at the best an unnecessary piece of mechanism, and the greater the simplicity that can be obtained in these courts of arbitration, the less will be the expenditure entailed, and in all probability also the more satisfactory will be the results achieved. We must not however forget that in some trades the practice may have become traditional, or may meet with ready acceptance; and should this be the case, then on the principles laid down at the beginning of this paper, the inconvenience which seems to follow from the practice would probably be more than counterbalanced by the advantage of habitual or approved usage.

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[91] *Cf.* I, p. 3.

[92] *Cf.* K, p. 17.

[93] *Cf.* H, p. 50.

[94] *Cf.* VI, p. 3.

[95] *Cf.* K, p. 30; H, p. 14; II, p. 16.

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[96] *Cf.* I, pp. 13 and 14, &c.
[97] *Cf.* I, p. 14.
[98] *Cf.* VI, p. 11.
[99] *Cf.* VI, p. 5.
[100] *Cf.* IV, p. 5.

But the special difficulty which the practice may perhaps in some cases meet, seems to be solved in a more satisfactory manner by retaining, if possible, the services of the same arbitrator time after time. Of course there may be adequate reasons for making a change, and in the iron trade Mr. Trow argues[101] that they did not select Mr. Dale as arbitrator in 1882, because they thought it well to get a "new man," "free from all former "traditions," to preside at proceedings, which involved "a departure from that which for some years" had "governed their "action." But, save in these exceptional cases, there are manifest advantages in having the same arbitrator. The president of the board puts the matter in a nutshell before Mr. Watson, sitting as arbitrator for the second time, in April, 1884, when he says,[102] "we "shall approach the question to-day as it were with an old friend, "because we feel that the time we occupied on the last occasion "was so exceedingly long, that we shall not have to ask him "(*i.e.*, Mr. Watson) on the present occasion to sit for any length "of time." In the previous case when Mr. Watson was acting as arbitrator for the first time, the past history of the board had to be laid before him, and a similar course was followed before Mr. Pease in April, 1882, and Mr. Shaw-Lefevre, in 1878.[103] But this was not required[104] before Mr. (then Sir Joseph) Pease in November, 1882, or before Mr. Watson in April or November, 1884, or October, 1885.

(δ) (1). Nor is the avoidance of detail the only advantage connected with the reappointment of the same arbitrator on successive occasions. But there is another consideration of the highest importance, and this is stated[105] by Lord Herschell in his award in the Northumberland coal trade of 31st January, 1876. He recommends the adoption of a sliding scale in the trade, and also the creation of an arbitration-tribunal of a permanent character; and he argues that in this way "a uniform principle would" "be "applied," and "justice would more certainly be done to all parties" than it would if the tribunal were "different on each occasion," and were "unable to know completely and accurately the principles on "which its predecessors proceeded." This uncertainty of the basis on which the award is to rest is perhaps the greatest difficulty connected with arbitration. Mr. Lloyd Jones, in a paper read before the Industrial Remuneration Conference, maintained[106] that arbitration was "slow, expensive, and at the same time very uncer-"tain in its results;" and he alluded to a possible insufficiency and inaccuracy of data, and to a suspicion of prejudice in the mind of the arbitrator. A passage in an article on Trade-Unionism in the "Co-operative Wholesale Society's Almanac"[107] for 1886, puts forward a somewhat similar indictment. Now of course, if the alternative were to lie between the method of arbitration and the method of strikes and lock-outs, this objection could hardly be regarded as valid. For the irritation caused by a strike or lock-out must in all likelihood be greater and more permanent than the irritation caused by the decision of an arbitrator, before whom the contending parties rely upon argument and not upon force. And if an arbitrator be liable to error, it may be urged with as much reason that a strike or lock-out is not free from suspicion of error. Nor indeed, if the idea commonly held that arbitrators' awards were given by "some splitting of the difference," or "softening the way," or "making things pleasant,"[108] were strictly and literally true, could it even in that case be denied that it is something to soften a feeling of hostility between unfriendly parties, by referring the dispute to a neutral mediator who is guiltless of unfriendly feelings, and is consequently able to "make things "pleasant." But nevertheless, after giving full weight to all these considerations, there still remains the undoubted fact that there is this difficulty inherent in arbitration—the difficulty of determining upon the principle which is to be recognised in the decision of industrial disputes. The two parties must, as Lord Herschell has said,[109] "proceed on some principle or other, if it is not to be a "'leap in the dark.'"

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[101] *Cf.* IV, p. 3.

[102] *Cf.* VII, p. 3.

[103] *Cf.* II, p. 6; IV, p. 7; VI, p. 4.

[104] *Cf.* V, p. 4; VII, p. 3.

[105] *Cf.* H, p. 240.

But this principle can hardly be supplied by Political Economy. Sir Rupert Kettle,[110] indeed, sitting as arbitrator in the Northumberland coal trade, says that he is a "political economist," but he adds that he requires "to go to the root of the matter "minutely as a man of business," before he gives his judgment. And as Jevons[111] has shown in his "Theory of Political Economy," in all bargains about a single *indivisible* object "there may arise "a deadlock," because neither party can read the mind of the other, and discern the exact length to which it is prepared to go in pushing demands or accepting concessions. Nor indeed, did they possess the gift of clairvoyance, would the problem be necessarily solved. For even then there might be no definite point fixed in the mind of either. After alluding to this passage in his "State in relation to Labour," he proceeds[112] to point out that the existence of *indivisible* combinations in trade disputes usually reduces them to a bargain of this "indeterminate" nature. To avoid a strike it may be the interest of either party to relinquish, or at least to relax, its demands; but theoretic economics cannot resolve the problem. It is, in mathematical phraseology, "indeterminate." There is moreover in the case such an element of extra-economic considerations—of feelings of justice, for example, or suspicions of "*mala fides*"—that it seems obvious that a trade dispute—especially when it has reached the "acute" stage of an open quarrel—"has little or nothing to do with economics." It is rather to the traditions of the trade and the past history of industrial relations that arbitrators must look for guidance. If then there have been previous arbitrations, reference to them is almost necessitated, for "it would" "be the height of presumption" "to ignore the labour of those who have previously been consulted by both parties."[113] Should the precedents, however, appear to conflict, an additional element of difficulty is imported into the matter—the difficulty of determining which precedent ought to be allowed the greatest validity. But this difficulty is evidently reduced to the smallest dimensions if the arbitrator on successive occasions is the same individual, for he naturally adheres to his own precedents, and tends in this way to establish a permanent tradition.

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[106] *Cf.* I. R. C. Report, p. 33.

[107] *Cf.* "Co-operative Wholesale Society's Almanac," 1886, p. 271.

[108] *Cf. supra,* sec. γ.

[109] *Cf.* H, p. 71.

[110] *Cf.* K, p. 37.

[111] *Cf.* "Theory of Political Economy," by W. S. Jevons, 2nd edit., pp. 130—137.

(2). The difficulties of this nature arising in arbitrations may be roughly divided into two classes, although the separation is to a certain extent artificial. In the first place there is the difficulty of deciding upon the data which are to be taken into consideration as a basis for the arbitrator's award; and in the second place there is the additional difficulty of ascertaining these data with accurate exactitude. This will be more clearly apparent if we consider some illustrative instances.

Let us take, for example, the nine arbitration reports of the manufactured iron trade of the north, to which previous reference has been made; and let us notice some of the leading arguments which have been adduced on successive occasions.

(3) (*a*). Throughout the nine reports in the manufactured iron trade there is a general agreement that the basis of the award is to be primarily the relation of wages to selling prices. But the agreement is not uniformly maintained, and a number of additional considerations are advanced. The table which is given

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[112] *Cf.* "State in Relation to Labour," p. 154, &c.

[113] *Cf.* IV, p. 24; Sir J. W. Pease's award.

in an earlier portion of this paper[114] affords evidence of a general correspondence between selling prices and puddling wages, and the fact is noticed by more than one arbitrator,[115] by Mr. Dale, for instance, in 1879, and by Sir Joseph Pease in 1882. The very existence of sliding scales in the trade on four separate occasions is proof of a tendency to adopt this relation as a basis. The masters appeal[116] to the evidence of prices before Mr. Dale in 1877, Mr. Shaw-Lefevre in 1878, Mr. Dale again in 1879, Sir Joseph Pease in 1882, and Mr. Watson in 1884 and 1885, and in fact rest the chief burden of their cases upon this. "It is quite impossible," their advocate maintains,[117] before Mr. Dale in 1879, "if wages do "not in some degree comport with" the "market price, for us to "carry on our business successfully." Before Sir Joseph Pease he alludes[118] to "the eight years' settlements based on the selling price "of iron," and he adds these words: "The eight years' sliding "scale arrangement, we believe, was the principle of determining "wages by the selling price of iron, and it would be extremely "difficult, if not dangerous, permanently to depart from that." The men on their part recognise the same general basis. Before Mr. Dale in 1877 they argue[119] that "the selling price of iron does "not justify the employers in demanding any reduction." "As "our wages in the past," they urge, "have been regulated by "the selling price of iron and not by the condition of trade, we "protest against the plea of depression being used for the purpose "of reducing our wages, and maintain that we have a right to "claim that our wages shall now be regulated on the former "basis, viz., selling price of iron, and not on the state of "trade." "We entirely agree that our wages should be regulated "by the selling price of iron."[120] "We have a right to demand "that a full inquiry shall be made, and that our wages shall only "be ruled by the former basis, viz., the selling price of iron." And they warmly protest[121] against the award of Messrs. Mundella and Williams on the ground that it was given on a new basis—on the depression of trade. But on the other hand the suspension of the sliding scales is evidence of an unwillingness to abide entirely by the changes in selling prices; and the men, in the very case to which we have just alluded—that before Mr. Dale in 1877—say[122] that "it is not always fair to base wages on the price of the article "produced." Before Sir Joseph Pease in 1882 they maintain[123] that the "value of their labour, in addition to the selling price,

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[114] *Cf. supra.*

[115] *Cf.* III, p. 14; IV, p. 24.

[116] *Cf.* I, p. 5; II, p. 3; III, p. 9; IV, p. 10; V, p. 5; VI, p. 4; VII, p. 3 VIII, p. 3; IX, p. 4.

[117] *Cf.* III, p. 11.

[118] *Cf.* IV, p. 12.

[119] *Cf.* I, p. 5.

[120] *Cf.* I, pp. 15 and 23.

[121] *Cf.* I, p. 17.

[122] *Cf.* I, p. 8.

[123] *Cf.* IV, p. 7.

"had been recognised" (with one exception) from the formation of the board in 1869 until September, 1873; that in that and the following year the employers made the utmost use of the surplus of labour in the market; that in 1875 it was the state of the labour market that gave the employers the advantage, and enabled them to effect a reduction; and that now in 1882 the men ought in their turn to reap the fruits of the comparative scarcity of labour. Before Mr. Watson in 1884 they protest[124] against following prices down to their lowest point, and argue that in the days of prosperity they did not follow them up to the highest point.

The condition, then, of the labour market, as well as the position of wages relative to prices, is urged by the men upon the attention of arbitrators. The reduction of 7½ per cent. effected by mutual arrangement at Birmingham in December, 1873, was expressly agreed to by the operatives, according to the contention[125] of their advocate, Mr. Trow before Sir Joseph Pease in 1882, because of their knowledge of the congested condition of the labour market. The success of the board is attributed[126] by them on the same occasion to the fact that in its early history "each arbitrator dealt "with the question submitted not on a narrow basis, but took a "broad view, and gave awards in accordance with the value of "labour and the conditions of the labour market at the time of "the sitting." Sir Joseph Pease once more, in his award on the same occasion, sums up their objections[127] to the exclusive basis of selling prices, and notices that an additional fact in support of their contention had been brought into the light during the course of the inquiry—the fact that certain allowances under the names of "prize money" and "Monday working money" were "freely "given during times of scarcity in the labour market," and "immediately withdrawn by certain employers" when the conditions of that market inclined in their favour.

Somewhat akin to the condition of the labour market is another consideration which has had no little weight from time to time in the history of the board. This is the relative position of the ironworkers in the north of England as compared with that of the Staffordshire men. The sliding scale of 1871 was suspended because the rates in Staffordshire were raised above those given by the scale in the north of England. The Staffordshire men obtained an advance of 20 per cent. The sliding scale in the north gave an advance only of 7½ per cent.[128] The scale was suspended, and an immediate advance of 12½ per cent. accorded. The Derby scale of 1874 was the result of a joint arrangement between the employers and employed of the north and of Staffordshire. The average selling price under this scale was to be ascertained[129] by an examination into the books of all the firms in the north of England and of twelve selected firms in Staffordshire. The average selling prices of the one were to be added to those of the other and divided by two, and the result of this calculation was to be the price recognised by the scale. Mr. Shaw-Lefevre's award, again, was apparently[130] based in a considerable degree upon the Staffordshire wages. Men and masters both appeal[131] before him to the Staffordshire rates and to the wages of the ironworkers in other districts as well; and this same standard of comparison is invoked on more than one other occasion.[132] The relative position, also, of ironworkers as compared with the men engaged in other trades finds a place in some of the arguments both of masters and of men;[133] and another contention advanced upon some occasions is indirectly connected with this.

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[124] *Cf.* VIII, p. 5.

[125] *Cf.* IV, p. 10.

[126] *Cf.* IV, p. 15.

[127] *Cf.* IV, p. 23.

[128] *Cf.* II, p. 6.

Thus the men appeal before[134] Mr. Dale in 1877 to the fact that a diminution in the expenses of production has been occasioned by a fall in the prices of pig iron and of coal, and consequently urge that a reduction in selling prices does not necessarily imply a decrease in profits; and the masters admit that this contention is one of considerable strength if supported by actual facts, and do not call in question at the moment the accuracy of the figures put in by the men with regard to the prices of pig iron and coal. But they argue[135] that the workers in the manufactured iron trade have not contributed towards these reductions; that the Durham colliers have had their wages decreased on three occasions since the last award in the manufactured iron trade; that the cokemen have undergone a similar process, and so have the colliery mechanics and engine-men. Reductions have also been effected in the wages of the Cleveland ironstone miners and in those of the blast furnacemen. And so the cost of other items in the expenses of production over and beyond the cost of labour is urged upon the attention of arbitrators.[136] The men advance this consideration on the occasion to which we have just referred, and the masters admit that it is a "strong argument."[137] The masters urge the same consideration[138] upon Sir Joseph Pease in 1882; but in this case the men contend that they have "nothing to do" with the cost of material, and that Sir Rupert Kettle on a previous occasion[139] had ruled that it had "no bearing upon" the wages question, although the employers had based the chief burden of their argument for a reduction of wages on the high rates of coal and iron.

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[129] *Cf.* I, p. 11; II, p. 10.

[130] *Cf.* II, p. 19; III, pp. 10 and 11. *Cf. contra*, VI, p. 9.

[131] *Cf.* II, pp. 3 and 6; III, p. 11; IV, p. 8.

[132] *Cf.* I, pp. 10 and 11; IV, p. 10; VIII, p. 9.

[133] *Cf.* I, p. 10; II, p. 15; IV, p. 11; V, p. 10.

[134] *Cf.* I, p. 7.

[135] *Cf.* I, p. 11.

[136] *Cf.* I, p. 11; VII, p. 8.

[137] *Cf.* I, pp. 7, 9, and 16.

[138] *Cf.* V, pp. 5 and 7.

[139] October, 1873, at Durham. *Cf.* IV, pp. 9 and 10; and also at Saltburn in April, 1873; *cf.* IV, p. 10.

But on their part they maintain that a searching inquiry ought to be made into all the details of management, and that the results of careless or incapable direction of industry ought not to be charged to their account;[140] and they urge before Mr. Watson in 1885 that relief should be sought by the employers in diminished royalties and lessened railway rates rather than in decreased wages.[141] The employers, however, emphatically refuse[142] to allow investigation into the inner working of their business with the object of ascertaining the causes of profit or loss; although indeed on their side they appeal more than once to depression in trade as an argument for reduction in wages. The decline[143] in the demand for iron is impressed upon Mr. Dale in 1877; the "great depression in the manufactured iron trade" is advanced before Mr. Shaw-Lefevre in 1878,[144] and again before Mr. Dale in 1879;[144] and the abandonment of the joint sliding scale in 1875 is justified[145] on the ground of the "great depression in the rail "trade." The men, on the other hand, stoutly protest against the award of Messrs. Mundella and Williams because this plea of depression of trade was taken into consideration; and they maintain that the loss of the rail trade is no concern of theirs, but is "one of those risks to which every capitalist is liable when he "embarks on an industry so precarious and liable to fluctuation as "the iron trade."[146]

There is one other argument of some importance which appears in the arbitration reports from time to time; and this is in one respect at least analogous to the question of profit and loss. For if the men have nothing to do with the "details of manage-"ment," which are the private concerns of the employers, it may be similarly argued, from one point of view, that the employers have nothing to do with those details of household expenditure which are the private concerns of the men. The argument is, however, scarcely sound, and as a matter of fact both employers and men have appealed to what is closely connected with the details of household expenditure—the cost of living or the purchasing power of money. The men allude to the cost of living[147] before Mr. Shaw-Lefevre in 1878; and in arguing upon the relation of wages to selling prices, they insist that there should be a minimum below which wages should not fall, whatever may be the position of prices.[148] The masters maintain,[149] with considerable detail, in November, 1884, and October, 1885, that the purchasing power of money has increased.

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[140] *Cf.* I, p. 7; II, p. 8; IV, p. 16; IX, p. 14.

[141] *Cf.* IX, pp. 5, 14 and 15.

[142] *Cf.* I, p. 9.

[143] *Cf.* I, p. 5.

[144] *Cf.* II, p. 3; III, p. 9.

[145] *Cf.* I, p. 11.

[146] *Cf.* I, p. 6.

[147] *Cf.* II, p. 4.

Here then we have a numerous list of arguments advanced on different occasions, in addition to the bare relation of wages to selling prices—the condition of the labour market; the wages paid to ironworkers in Staffordshire and elsewhere, and to men employed in other industries; the additional elements over and above wages in the expenses of production (including the cost of materials, and the amount of royalties and of railway rates); the character of the management of business undertakings; the depression in the demand for iron; and the cost of living. Some of these considerations, of course, have been disallowed on different occasions by the opposing parties, and may or may not have affected the final award; but the fact remains that they have been advanced as data deserving attention.

(*b*). There is, again, some difficulty experienced in ascertaining these data with exactitude. It is by no means easy to gauge with accuracy the depression of trade, or the conditions of the labour market. The details of management are a closed book, so far as the operatives are concerned; and they can only rely upon the roseate reports of the directors of joint-stock companies.[150] The purchasing power of money is ascertained by the masters from the prices supplied to them by officials connected with the Middlesbrough Co-operative Society,[151] but the men contend[152] that they do not "deal with co-operative stores;" that they "live on the "credit system," and that therefore "25 per cent." must be added to co-operative prices before they can fairly be put in as evidence. The comparison of the rates in the north of England with those in Staffordshire is somewhat complicated[153] by the special "extras" which appear to be paid in the former case; but an additional allowance of *6d.* in favour of Staffordshire seems to be generally made in calculations of wages. There appears however to have been some irregularity in the payment of these so-called "north-"country extras."[154] The amount of selling prices, on the other hand, is regularly ascertained by the accountant to the board; and this evidence is generally, though not indeed invariably, accepted without question by masters and men.[155] The provision under which these prices are ascertained dates back to the year 1872,[156] and the first quarter for which the accountant's returns were made out was that ending on 29th February in that year. The method pursued by him is described by the president of the board before Mr. Watson in 1884. The figures, he states,[157] are "arrived at by "the examination of the books of all the firms connected with the "board, and also of several others," by Mr. Waterhouse, the accountant to the board. "He takes out and verifies for the two "months' period, and he takes off from the invoices the discounts "and commissions which have to be given by the firms on each "special order, and he arrives at the net price of each ton which "has left the works. And adding these two together, he finds "exactly the total number of tons sold, delivered, and invoiced by "all the firms in the north of England connected with the board. "He gives these figures in certificated returns every two months. "He sends round to the works, and he examines the books himself, "or by his officials, and vouches for them and their accuracy." "Every ton of iron of any quality that has been sold by any "employer" is included in these returns;[158] and by a mutual agreement effected at Durham in March, 1883, the period of ascertainment was reduced from three to two months, in order to secure the more rapid adjustment of wages to the changes in prices. Sometimes, however, the prices likely to be realised in the current or succeeding period, and not those actually realised for the previous period, have been put in as evidence, and then an element of uncertainty is at once introduced.[159]

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[148] *Cf.* I, pp. 8 and 15.

[149] *Cf.* VII, p. 10; VIII, pp. 10 and 11; IX, p. 11.

[150] *Cf.* IX, p. 14.

[151] *Cf.* VIII, p. 11; IX, p. 11.

[152] *Cf.* VIII, p. 13.

[153] *Cf.* II, pp. 7, 12, and 15.

[154] *Cf.* II, p. 13 and 16; IV, p. 8; V, p. 7; VIII, pp. 11 and 14; IX, p. 6.

[155] *Cf. contra*, IX, pp. 5 and 9.

[156] *Cf.* I, p. 18.

(*c*). The difficulty, once more, of agreeing upon a definite period when wages are to be considered to bear a normal relation to prices is again and again brought into clear relief in the manufactured iron trade. The employers place before successive arbitrators tables giving the history of the changes in wages between the award of Messrs. Mundella and Williams in 1876, and the suspension of the sliding scale in February, 1882; and if they do not adopt the year 1876 as a starting point, they go back to the Derby scale of 1874.[160] But the men take objection to this standard on more than one ground. They declare that it is an unfair basis on which to calculate the average normal relation of wages to prices. For they maintain[161] that the award of Messrs. Mundella and Williams cannot be allowed to enter into the question, as the decision was based not upon selling prices but upon the novel and dangerous foundation of depression of trade; and the arbitrators themselves stated both in the written award—and in the case of Mr. Mundella, in a letter addressed[162] to Mr. Trow, the workmen's representative, in answer

[157] *Cf.* VI, p. 7.

[158] *Cf.* VII, pp. 5 and 6.

[159] *Cf.* II, p. 7; V, p. 11.

[160] *Cf.* I, p. 5; II, p. 3; III, p. 9; IV, p. 10; V, p. 6; VI, p. 3.

[161] *Cf.* I, pp. 6 and 7; IV, pp. 8 and 16.

[162] *Cf.* III, p. 13.

to a definite inquiry upon the point—that the reduction in wages was not to be considered as "establishing any relative rate of wages "to prices." Nor, they contend, does Mr. Dale's award of April, 1878, have any real bearing upon the case, because in all probability,[163] like that of Mr. Shaw-Lefevre's[164] of 1879, it was based upon the relative position of the wages in other districts and not upon selling prices. At any rate, they urge, he did not by his award express[165] any approval of the rate established by that of Messrs. Mundella and Williams, for he virtually awarded a higher rate than they had done, and he pursued a similar policy in refusing to alter the rate of wages in August, 1877, and September, 1879. The sliding scale of 1879, and the Durham arrangement of 1883, are considered by the men to be unfair; to have been accepted, partly because of very important concessions accompanying them;[166] and to make no allowance for[167] the 5 per cent. which is generally admitted to be the value of a time bargain in wages to the employers.[168] The basis adopted in the Derby sliding scale was, they argue, forced upon them owing to the state of the labour market,[169] and the reduction which followed upon its suspension was occasioned by a similar cause. If then an appeal is to be made to the past history of the board in order to discover the proper relation of wages to prices, the whole of that history should be taken into account,[170] and the times when 2*s.* 6*d.* and 2*s.* 9*d.*, and even 4*s.* above shillings for pounds were given, should affect the average struck as much as the depressed times[171] of the Mundella-Williams award or the times of the 1*s.* 6*d.* or 9*d.* scale. But the employers reply to this by denouncing such references to the past as appeals[172] to "Old "Testament history," and "ancient" epochs; and by maintaining that the decline, or rather the disappearance,[173] of the rail trade revolutionised the character of the manufactured iron industry, and necessitated the abandonment of the arrangement with Staffordshire; that the average of 1*s.* 6*d.* over shillings, fluctuating between a minimum of 9*d.* and a maximum of 1*s.* 9*d.* has prevailed for a long period, and is a fair and normal relation;[174] that in striking the average, the times of abnormal and exaggerated prosperity should be excluded;[175] that the awards of Messrs. Mundella and Williams, and of Mr. Shaw-Lefevre, were made after long and patient and exhaustive inquiry, and were based in the main upon selling prices, although other matters may also have been taken into consideration;[176] that Mr. Dale's awards tended if anything to confirm that of Messrs. Mundella and Williams, and probably inclined in favour of the men;[177] and finally, that the figure of 1*s.* 6*d.* over shillings does make full allowance for the 5 per cent. value attaching to a time bargain.[178]

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[163] *Cf.* II, p. 6; IV, p. 8; V, p. 9; VI, p. 5.

[164] *Cf.* III, p. 10; VI, pp. 5 and 18; VIII, p. 7.

[165] *Cf.* VI, p. 5.

[166] *Cf.* VI, p. 13.

[167] *Cf.* V, p. 9; VI, p. 6; VIII, p. 12; IX, p. 5.

[168] *Cf.* VI, pp. 4 and 14; VII, p. 4.

[169] *Cf.* III, p. 10; IV, pp. 7, 8, 10, 11 and 16; V, p. 9; VI, p. 4.

[170] *Cf.* III, p 13; V, p. 9; VI, p. 4.

[171] *Cf.* IV, p. 16.

[172] *Cf.* VI, pp. 6 and 7; VIII, p. 16.

[173] *Cf.* I, p. 11.

[174] Sir J. W. Pease makes it average for the seven years 1874-82 about 1*s.* 4*d.*, including the exceptional case of December, 1879, when it rose to 3*s.* by the advance of 12½ per cent.; *cf.* IV, p. 24. It was 1*s.* 7·24*d.* exactly between 1876-85; *cf.* IX, p. 4.

(iv). Such then are the chief disadvantages and difficulties which seem to attach to arbitration. In the first place there is the possibility that the award may not meet with loyal adherence. In the second place, despite of the courteous attitude of either side, the formality of procedure which must to some extent be imported into these matters, and the preparation of elaborate arguments thereby entailed, are likely to engender some contentiousness, and to leave behind a little soreness. And in the third and last place, an element of possible uncertainty, and of real and serious difficulty, is introduced by the necessity of discovering some definite principle on which the award may be based, and of ascertaining with exactitude the data which are to guide the application of the principle to the particular circumstances of the moment.

It need hardly be shown in detail that these objections attach in the same manner—and in the case of the second at least in a very much more intensified degree—to "strikes" and "lock-outs," and to irregular negotiations during the continuance of these struggles. If indeed the ultimate appeal is made to force, it is evident that the party which has proved the weaker must abide for the time by the terms of capitulation, but it is only too likely to be ready to take up arms again the moment it imagines that it is stronger than its opponent. Peace is indeed secured for the time, but the feelings which prompt to war are left behind, unchanged and unchanging. Nor is either party likely to arrive at any definite principle on which the decision of the dispute can be based, save that alone of the might of the stronger, when they regard one another as enemies, to whom they are unwilling to reveal, if they can help it, the circumstances of their own position, and upon whose advances and statements they look with suspicion, reluctant to credit the former with genuineness or the latter with accuracy.

But it is with respect to the second of the disadvantages to which we have just alluded, that industrial peace, however maintained, is so signally superior to industrial warfare. There is indeed an element of contentiousness attaching to arbitration, but it is as nothing compared with that attaching to "strikes" and "lock-outs." Arbitration allows room for the growth—gradual though it may be—of amicable feelings; industrial strife stereotypes and perpetuates an attitude of implacable hostility. Many and many a failure in arbitration—disappointing as those failures may be—may yet find ample compensation in a single instance where the two disputants have agreed to refer the settlement of their quarrel to the peaceful mediation of a neutral party. It is the promise of the future which is the basis at once of the hopefulness of arbitration and the despair of industrial conflict. For when once the opposing parties have met on an equal footing, and have learnt to rely for the maintenance of their claims upon argument rather than force, they have taken the first and most difficult step upon the path which conducts naturally to conciliation—to mutual concession instead of contentious argument.

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[175] IX, p. 9.

[176] *Cf.* III, p. 11; IV, p. 9; VI, pp. 7 and 9.

[177] *Cf.* II, p. 11; IV, p. 17; VI, p. 7.

[178] *Cf.* V, p. 6; VI, pp. 4 and 14; VII, pp. 3 and 6; VIII, pp. 3 and 9.

For the value of conciliation chiefly lies in this—that from its very nature it reduces the element of contentiousness to a minimum, even if it does not dispense with it altogether. And with this element of contentiousness gone, the danger of infringement of the articles of peace, and the difficulty of arriving at a definite principle and of agreeing upon accurate data, do not indeed become inconsiderable, but do lose half, or more than half, of their seriousness. For, from the very statement of the case, it is clear that either side is likely to abide by the decision to which it has willingly agreed; and the difficulties of the peaceful settlement of a quarrel have a happy faculty of disappearing when either side is prepared to make mutual concessions, is anxious to come to an agreement, is habituated to friendly intercourse and courteous discussion. Nor is accuracy of data more unlikely to be secured when both sides are ready to furnish evidence, and to listen to the evidence supplied by their opponents, and when the persons engaged in the discussion are *ex hypothesi* well acquainted with the technical details and industrial history of the trade.

We must not however forget that these two disadvantages do attach in a minor degree to conciliation as well as to arbitration. For there is a possibility that the constituents may not abide by the negotiations of their representatives at the board of conciliation, and there is also some difficulty in determining the proper basis for the settlement, and discovering the exact data required. And in the background at least there must be provision for reference to arbitration in some form or other, if there is to be any way out of a deadlock.

IV.

(A) Conciliation, when thoroughly established and recognised, may pave the way for what may be called the automatic regulation of wages by sliding scales. These scales have been successfully adopted in the mining industries, and especially among the colliers in some parts of England; and for a typical example of their operation we may take the coal trades of Durham and Northumberland. The principle on which they are based has been explained with some detail by Professor Munro,[179] and is briefly this: wages are to vary according to the selling price of the coal. A time is settled when the relation between wages and prices is agreed by both parties to be fair, and the scale is based upon this relation. The price paid at that time for coal is termed the "standard" price, and the wages then paid are the "standard" wages. This then is the general principle, although it admits, as we shall see, of considerable variety upon points of detail; and Professor Munro gives an exhaustive definition of a sliding scale in these terms: it is a "method by which wages, based on a "standard wage payable at a standard price, rise or fall an agreed "percentage with every agreed rise or fall in the average price of "coal at the mines, such average price being ascertained at fixed "intervals."[180]

(i). These sliding scales admit, as we have noticed, of considerable diversity of detail. For both in Northumberland and in Durham there is frequent occasion for the action of the joint committees. The standard wage indeed is the average wage of the county, but it by no means follows that this wage is paid to every individual miner. For, as Professor Munro states,[181] "not "only will wages vary from colliery to colliery," but "in the "same colliery apparent differences of wages will exist." The nature of the seam and the difficulty of working it are taken into account; and indeed it would appear that some other elements as well enter into the matter, "for the different rates per seam" supplied in a table printed in Professor Munro's pamphlet "do "not result in an equal daily wage." "The real standard wages" then "for any particular colliery," in Northumberland for instance, are the wages paid at that colliery to the different classes of labourers in November, 1878. For the prices and wages then paid were taken as the starting point of the first scale in the Northumberland coal trade.

And so side by side with the sliding scales in Northumberland

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[179] *Cf.* "Sliding Scales in the Coal Industry," and also "Sliding Scales in the "Iron Industry."

[180] *Cf. op. cit.*, p. 6.

[181] *Cf. op. cit.*, p. 16.

and Durham we find the action of the joint committees. The average wage for the county fluctuates in accordance with fluctuations in prices in the manner arranged by the scale, and the particular wages at particular collieries fluctuate also in accordance with the fluctuations in county prices; but in addition to this the joint committee may be called upon from time to time to effect local and special readjustments. We have before alluded[182] to the action of these committees, but the matter will perhaps be placed in a clearer light by two illustrative instances. Thus we read in a local newspaper[183] that at two collieries the "hewers" had received notice from the head manager of a "local reduction in the "hewing prices." At one of these collieries 2*d.* per ton was demanded off the prices for the yard seam, and 2*d.* per ton off the Low Main, *exclusive* of the last 1¼ per cent. reduction effected by the county sliding scale. The men held a meeting to discuss the matter, and then offered 1½*d.* reduction on the "pillar" working of the Low Main, and 2*d.* a ton on the yard seam, including the last 1¼ per cent. by the county sliding scale. The offer was refused, and another meeting was held. At this the men passed a resolution stating that they had made a fair offer, and that, should it be again refused, the case should be submitted to the joint committee. At the other colliery, where the masters wanted a reduction of 4½*d.* a ton off the Telford way in the yard seam, a compromise was effected, and a reduction of 4*d.* per ton on the "loose end" places, and 2*d.* on the places "going in the fast" was arranged. Another paper contains[184] a reference to a dispute at a colliery where the men decided by 75 votes to 39 to send in a fortnight's notice in order to obtain an alteration in the standard of wages. A deputation waited upon the executive of the Northumberland Miners' Union, and was informed that, by the rules of the union, a majority of two-thirds was requisite before the declaration of a strike, and as this had not been obtained, the notices could not be issued. These two instances, about which there is nothing of an unusual character, may serve to exemplify the necessity and the operation of the joint committees in the coal trades of Northumberland and Durham.

B (i). The chief advantages of these sliding scales may be said to lie on the one hand in their elasticity, and on the other in their automatic action. For, as we shall see hereafter, and as the diversity of local application which characterises the scales in the Durham and Northumberland coal trades so strikingly illustrates, they admit of adaptation—to an extent which has entered as yet perhaps not even into the conception, and certainly not into the practice, of those actually engaged in industry—to the most diversified situations. Nor is it necessary to prove the obvious fact that during the time these scales continue in operation the general fluctuations of wages proceed with automatic precision, and therefore the possibility of general friction is inconsiderable. And as a consequence of this automatic regularity, it follows, as Professor Munro has stated,[185] that sliding scales "give a "steadiness" on the one hand to trade, and on the other to wages.

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[182] *Cf. supra.*

[183] "Newcastle Daily Chronicle," 1st February, 1886.

[184] *Cf.* "Newcastle Daily Leader," 9th March, 1886. Mr. R. Young informs me that in this case reference was not made to the joint committee because the colliery owners did *not* belong to the Masters' Association, and therefore could *not* appeal to the committee. In other cases the decision of *all* disputes rests with the committee, on appeal being made by either party.

It is hardly necessary to say that the recurrence of industrial disputes promotes instability in trade. It may indeed be argued that when a strike follows a period of over production in some branch of industry, it may result in clearing the market more thoroughly than would otherwise be done.[186] It may also be the case that conditions have been inserted in contracts providing for the special contingency of a strike. But the fact still remains that employers are likely to prosecute their industrial undertakings with greater confidence; to avail themselves of fresh openings with more vigorous enterprise; and to make a fuller use of existing opportunities, if they are freed from all reasonable apprehension of a sudden and forcible cessation of industry. The mere rumour of a strike must exercise an appreciable influence upon the bold conduct of commerce; its actual occurrence is only too often an incontestable calamity. And even under the more peaceful system of arbitration some friction is likely, and some delay is occasioned, in the settlement of a dispute; and the least amount of friction, and the shortest period of delay must exercise—though indeed in a less degree than a strike—a prejudicial influence upon commercial enterprise. Nor again if the trade is one of great fluctuation can an arbitrator fairly fix wages for a very long period, for he cannot foresee the changes in prices which are likely to occur.[187] But a sliding scale, on the other hand,[188] as Mr. Watson argues, "is the simplest and "therefore the best method. It does not settle trade disputes, it "avoids them."

(ii). But not only does a sliding scale thus tend to promote stability in trade, but it also, as a necessary consequence of this, tends to promote stability in wages. This latter point indeed may not appear to be so obvious as the former. For at first sight the tendency of a scale may seem to be the very reverse of this. If wages are to fluctuate with variations in price, then it may seem that they will be continuously moving up and down, and that instability rather than steadiness will be the result. But before we accept this conclusion, there are several considerations to be borne in mind. For under a system of periodical arbitration there may be a similar fluctuation in wages. Owing to the changes in prices there may be repeated recourse to arbitration. In the Durham coal trade immediately before the institution of the first sliding scale there were nine successive arbitrations within the space of two years; and in the manufactured iron trade the workmen complain[189] before Mr. Watson in November, 1884, that the constant resort that had been made to arbitration within the past year was calculated to undermine the very existence of the board, and was in an eminent degree an "anti-conciliatory" policy. Nor, as a matter of fact, do most sliding scales contemplate any continual fluctuation in wages. In the coal trade the Somerset scale is an exception—and apparently a solitary exception—in providing that every rise or fall in prices shall be accompanied by a rise or fall in wages. In most cases prices are to be ascertained only at definite intervals—sometimes every six months, as in the South Wales' Association scale of 1875; sometimes every four months, as in the first two Durham scales and in the South Wales' scales of 1880 and 1882; sometimes, again, every three months, as in the last two Durham scales, the Northumberland, the Cumberland, the Ocean, and the Ferndale scales; sometimes every month, as in the Bedworth scale.[190] Of course it may happen that the period of readjustment fixed by the scale may prove to be too long; and in the manufactured iron trade, where the prices under the scales of 1871, 1874, and 1880, were ascertained every three months, the last scale seems to have excited dissatisfaction and to have been abandoned, partly[191] at least, because it was too slow in its action and was not speedy enough in giving the men the benefit of a rise in prices, or in securing a reduction of wages when prices were falling. At any rate the accountant's returns, which continue to be made in the north of England—but not in Staffordshire[192]—when a scale is not in operation, were furnished, under the Durham scale of 1883, every two months,[193] and this practice has since been followed. But even if the periods when prices are ascertained are comparatively frequent, yet some definite interval at least is taken, and there is no fluctuation of wage from week to week. Nor again do wages vary with every fluctuation of price, but only with those of a certain amount. The sliding scale, once more, is no inadequate guarantee for regular employment. For there is little fear of the interruption caused by a strike or lock-out; and the very stability thus ensured to the conduct of trade encourages the enterprise and confidence of employers, and tends to make the trade itself and the workers more prosperous.

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[185] *Cf.* "Sliding Scales in the Coal Industry," pp. 17 and 18.

[186] *Cf.* "The Wages Question," by F. A. Walker, p. 391, foot note; also Report of Royal Commission on Depression of Trade. *Q.* 5267—9 and 5760.

[187] *Cf.* I, p. 4; V, p. 4.

[188] *Cf.* "Boards of Arbitration," p. 17.

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[189] *Cf.* VIII, p. 4.

[190] *Cf.* "Sliding Scales in the Coal Industry." pp. 20—52.

[191] *Cf.* IV, p. 6; V, p. 4.

[192] *Cf.* VIII, p. 8.

[193] *Cf.* VI, pp. 7 and 9; VII, p. 6.

The importance of this stability of wage and regularity of employment can hardly be over estimated. Mr. Mawdsley is but expressing the truth when he writes,[194] the fluctuation of wages is the "bane of our class;" and Professor Marshall calls attention[195] to another aspect of the same truth when he states, "forced interruption to labour is a terrible evil." For a constant alternation between high and low wages unsettles the character and the habits of a man; and irregularity of employment affects in a similar way his physical, his mental, his moral aptitude for work. The habits of expenditure formed in a time of extravagant prosperity, may lead in a time of sudden adversity to debt, of the burden of which it may take a lifetime to effect a riddance; and a period of leisure, which would recruit the exhausted energies of a man if it came at regular intervals, will of itself be likely to undermine his strength and efficiency for work if it occurs at irregular periods, or amid the pressure of pecuniary embarrassments. Far "better" were it "for a family," argues Mr. Mawdsley,[196] "to have 35*s*. per week for fifty weeks in the year, than 40*s*. for "twenty-five, and 31*s*. per week for the other twenty-five;" and better too, we may add, is it likely to be for employers and for the nation as a whole, if the efficiency of labour be taken into account, as it must be on any sound theory of production or distribution. The coal and iron industries are liable to considerable fluctuations, because they necessarily suffer when other industries are depressed—and in the Northumberland coal trade, at least, the trade seems to have been periodically slack in the winter when the Baltic is closed—but if men and masters can look forward for a period of three or more months to definite certainty in industrial relations, this element of fluctuation loses half its injurious effects, and the condition of things is yet further improved when changes in wages only follow upon changes of a certain amount in prices.

iii (α). A further question of no little interest suggests itself with regard to the future consequences of sliding scales. Do they or do they not tend in the direction of industrial partnership? Jevons maintains[197] that "both the sliding scale and the system

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[194] *Cf.* I. R. C. Report, p. 158.

[195] *Cf. op. cit.*, p. 175.

[196] *Cf. op. cit.*, p. 158.

[197] *Cf.* "State in Relation to Labour," p. 158.

"of arbitration generally" ought to be regarded as a "stepping "stone to some still sounder method of partnership and participa- "tion in profits which a future generation will certainly enjoy." Mr. Watson says[198] that the sliding scale "is no doubt a distinct "step in the direction of industrial co-partnership." But we cannot help thinking that this conclusion requires to be stated with some modification; for the evidence upon the point appears to tell in a negative as well as an affirmative direction.

In the first place, the successful conduct of conciliation or arbitration, and the continued operation of sliding scales, depend in a very large degree upon the strength of the organisations of men and masters on either side. It is indeed true that the first board of conciliation in the manufactured iron trade of Staffordshire seems to have failed because it was confined to the local branch of the Ironworkers' Union, and those ironworkers who were outside the ranks of the union did not consider themselves bound by the decisions of the board;[199] but this fact tends rather to show the necessity of an union strong enough to secure the actual allegiance of at least the great majority of the men, and the probable concurrence of the non-unionist minority. It is true again that in the iron trade of the north of England we find the representative of the men contending[200] before Mr. Watson in 1884 that both masters and men ought to "forget" their respective associations at the meetings of the board, and that "the Board "should be able to decide all questions submitted to it without "the interference of any other association;" and this contention seems to be reasonable. But on the other hand there appears to be equal reason in the argument of the representative of the employers,[201] that the board is "founded upon the idea of organisa- "tions on both sides;" and before Mr. Dale in 1877 the men themselves allude[202] to the possible difficulty which might be experienced in securing the adherence of the "strong non-union "element" to the award of the arbitrator. It is indeed sufficiently obvious that the decisions of courts of arbitration and the arrangements of a sliding scale will be of little avail unless masters and men are willing to abide by them. This they are not likely to do unless the negotiators are thoroughly representative; and this thorough representation can hardly be secured save through the medium of an association of masters on the one side and of men on the other. Sir Rupert Kettle once stated[203] that he confessed that he saw "no organisation but" that of "trades unions" upon which to fall back "for the purpose of conducting the business" of these boards and of electing workmen's delegates; and the reply[204] of the Newcastle Chamber of Commerce to the questions addressed to it by the Royal Commission on the Depression of Trade very aptly illustrates this point. "Very little change," it writes, "has "taken place recently in the relations between capital and labour, "except that they have become steadier, chiefly through the work-"men's trade unions being well organised, and being met by like "organisations of employers; circumstances which, in some cases, "have led to the formation of boards of conciliation and the "regulation of wages by the market values of the productions."

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[198] *Cf.* "Boards of Arbitration," &c., p. 17.

[199] *Cf.* "Industrial Conciliation," p. 64.

[200] *Cf.* VIII, p. 7.

[201] *Cf.* VIII, p. 10.

[202] *Cf.* I, p. 14.

[203] *Cf.* Report, by J. D. Weeks, sec. xi, p. 26.

But if, on the one hand, the existence of strong associations on either side appears in this way to be necessary, if "increased "organisation" really "means decreased war," it is, on the other hand, obvious that the idea which lies at the bottom of trades unionism is the antagonism of interests between masters and men; and hence it might seem that a system which rests upon trades unionism, whether of masters or of men, as its basis, is scarcely calculated to result in a system which is the very opposite of trades unionism. Masters and men may indeed meet round a common table and arrive at a common agreement; but they meet as representatives of associations which have been formed on either side for the avowed purpose of protection against the other side, and they arrive at an agreement on the negative ground of the injury and irritation caused by a strike, rather than on the positive basis of an acknowledged identity of interests. It is a great point gained that they should meet and that they should agree; and a sense of identity of interests may be the ultimate outcome of this.

But even then it seems likely that, so far at least as the action of the sliding scale itself is concerned, this identity will be an identity not between the employer and employed of a certain business undertaking, but rather between a combination of employers and a combination of employed. There is apparently no necessary tendency in such an arrangement to transpose industrial divisions from the "horizontal" to the "perpendicular"—to use Jevons's expressive illustration[205]—from the opposition of workmen as a body to employers as a body, to the opposition of the workers, employer and employed alike, in a single undertaking to the workers in another undertaking. There are indeed grounds for supposing that the tendency is in the opposite direction; for to some extent at least the respective capacity of men and masters does not result in direct advantage to themselves, but affects the condition of those engaged in the trade as a whole. Payment by piece, indeed, which is the general practice in the coal and iron trades, has, as Professor Marshall has pointed out,[206] an element of co-operation in its nature, for both employers and employed are directly interested in an additional output. But so far as this argument has weight, the payment by piece is merely part of the mechanism adopted by particular sliding scales, and is scarcely to be regarded as belonging to the essence of the system. It is of course true, over and beyond the results of payment by piece, that the output is likely to be greater when prices are higher, and consequently by the arrangement of the scale, wages also are higher; and that therefore employers and employed have a coincident interest in an increased output on account of increased prices. But this identity of interest is so far only probable and contingent, and belongs to them rather as a body than to those connected with a particular mine. It is obvious also that the workmen of a particular mine benefit in the way of regularity of employment if their employer exhibits more capacity than his fellows, and can thereby secure a larger amount of business. But on the other hand the method of ascertaining the average price is likely, in the probable contingency that a particular employer is enabled by his superior business capacity to obtain a greater number of orders and sales at higher prices than his competitors in the trade, to distribute part of the benefits of this over the whole body of the workmen affected by the scale, and to subject his fellow employers to a corresponding disadvantage. For the net average price has been ascertained, in the case of the coal mining scales, by the inspection of the books of all the owners; and in the case of the iron industries by a similar examination of the books—in some instances of all, in others of a selected number—of the firms. The net selling prices thus ascertained are added together to form one sum; this sum is divided by the total quantities of the commodities sold, and the result of this division is taken as the average price of the scale. It is on the variations in this average that fluctuations in the average wage, and the local modifications of that, are based. But it is obvious that the extensive sale of the coal of a particular colliery at a high price would result in an increase in the average price, and would thus occasion a rise of wages not only to the miners at the particular colliery, the owner of which had by his business capacity, or from any other cause, secured this sale, but also to the whole body of miners affected by the scale. And a corresponding expense in wages would be entailed not merely upon the particular owner who had secured the high price, but also upon the other owners who had only realised a lower price. And so there would be nothing in this to separate the interests of the men in the particular colliery from those of the general body, and to associate them closely with those of their own individual employer; but it would be far more likely that the general body of the men, finding that their wages were rising as a whole—setting aside variations of a local character—would so far regard their interests as essentially common.

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[204] *Cf.* Second Report, part i, Appendix B, p. 400, ans. 14 (*a*).

[205] *Cf.* "State in Relation to Labour," p. 145.

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[206] *Cf.* "Economics of Industry," III, IX, sec. ii.

Similar conclusions may also be based upon cases like that of the Northumberland coal trade, where there is a broad division between the "steam-coal" and the "soft-coal" collieries. Before Lord Herschell in 1875 an owner stated[207] that "it would be found "in investigating the accounts of any one particular colliery," that "there would be a very great difference in the prices obtained for "the different classes of coal." "At one colliery," he added, "it "would be one price, and at another colliery it would be another "price, and so on." In order therefore to avoid complication, the gross sales and the gross prices had been taken by the owners as the basis on which the average net selling price was to be calculated. This statement was made in answer to an objection raised by the men, and allowed by the umpire, on the ground that the sales of coal at the "steam-coal" collieries had not been distinguished from those at the "soft-coal" collieries in the accounts supplied by the owners; and that therefore by averaging the two the workmen in the one branch of the trade which was prospering might "suffer" because the other branch was not in a prosperous state. In the same way it appeared in argument before Sir Lyon Playfair that the sale of the small coal was a very variable element, sometimes commanding a market and sometimes not; and his award was based in the main upon this consideration.[208] At some collieries also it seems that some other commodity, such as clay or bricks, is produced in addition to coal, and this, the owners allege, does enter as an item into the calculations of selling prices.[209] In Durham again there are four great classes of coal—gas coal, manufacturing coal, household coal, and coking coal;[210] but these classes do not appear to be distinguished in the accountants' returns. In all these cases then the men are treated as a whole, although it is manifest that an increased sale of the coal which realises one price, and a diminished sale of that which realises another, would affect the average price. But despite of this, it is as a whole that the men are treated, so far as the alteration in the average wage, on which the local variations are indirectly based, is concerned; although the average price, on which the average wage itself is based, is influenced by circumstances peculiar, it may be, to the men of a

[207] *Cf.* H, pp. 37 and 39.

[208] *Cf.* P, pp. 133 and 134.

[209] *Cf.* H, pp. 61 and 63.

[210] *Cf.* H, p. 109.

particular class of colliery—perhaps even to the men of a single colliery.

This point is emphasised by the reports of the proceedings at courts of arbitration in the manufactured iron trade. For the masters urge[211] before Mr. Dale in 1877 that in the face of the sudden decline—or indeed the practical disappearance—of the iron rail trade, it would be fair to rest their claim for a reduction upon a comparison of the prices of plates, bars, and angles alone; and before Mr. Shaw-Lefevre in 1878 they do, as a matter of fact, omit[212] the prices of rails from the statement they place before the arbitrator. The men on their part contend[213] before Mr. Dale in 1879, that the evidence furnished by a comparison of the past and present returns of the accountant must be discounted by the consideration that in the averages of past years the prices realised by certain firms which manufactured higher-priced classes of iron had been included, but were now excluded; and that the appeal to the so called "Thorneycroft basis," to which the employers had referred, was similarly vitiated on the ground that it had been based not upon the prices realised by all the firms concerned, but only upon those secured by a few leading firms. Before Mr. Watson again they maintain[214] that the prices quoted by the employers from the "Iron and Coal Trades Review" are misleading, because they are based on those of the very lowest-priced classes of iron, and their wages, according to traditional custom, are determined by the average obtained by adding together into one sum the prices of all classes and every quality.

The point we have noticed may of course be said to be in some sense of an accidental nature, and by no means to attach of necessity to sliding scales; and this is true so far as the different classes of iron and coal enter into the matter. It might indeed be difficult in practice to effect a separation between the different classes and qualities of the articles produced, if that separation were not confined to the broadest differences, but were carried down to the minute and manifold distinctions of quality which are to be found in almost any industry. But the separation, it must be admitted, turns upon the question of introducing fresh complications into the calculations of the accountants, and of incurring additional expense.[215] It seems, from a theoretical standpoint, to be possible, and the result we have just been considering appears to be in some measure the consequence of including in one combination of employers or employed men whose circumstances are essentially different. For by acting as a whole they must of necessity waive individual distinctions so far as the average price is concerned. But the way in which the average price is affected by the individual enterprise of a particular employer is a factor which cannot be eliminated; and on this ground, if on no other, it seems that a sliding scale does not necessarily tend in the direction of industrial partnership.

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[211] *Cf.* I, p. 5.

[212] *Cf.* II, p. 3.

[213] *Cf.* III, p. 10.

[214] *Cf.* VII, p. 4.

[215] *Cf.* "Sliding Scales in the Coal Industry," pp. 35, 37 and 38; and *contra*, p. 41.

The point, however, is a nice one in theory, and its exact influence in practice may not be very important. But it derives support from other considerations of a similar purport and a more obvious character. For a sliding scale, it must be remembered, does not proceed upon any avowed theory of sharing in profits, but only upon a theory of participation in prices. The amount of profits indeed is jealously kept from the knowledge of the public, the workmen and rival employers;[216] and the accountants, who investigate the books and compile the returns, are sworn to secrecy. The employers stoutly maintain[217] that the wages of the men have nothing to do with profits; and the consideration of "costs of "production" is excluded from the arrangement of the scales. The attitude thus adopted is scarcely calculated to lead to an avowed industrial partnership.

One other point deserves a passing notice. Under a system of industrial partnership the share allowed out of profits would be paid on profits actually secured; in a sliding scale the rate of wages paid for the quarter, or the four months as the case may be, is based upon the selling prices of the previous period, which may not indeed be actually realised during the succeeding period; and hence the reason for the greater frequency with which prices have been ascertained in the manufactured iron trade under the Durham arrangement of 1883.

(β). But although these considerations must discount to some extent the probability of the development of a system of industrial partnership out of a system of sliding scales, there are also opposing considerations which must not be forgotten.

In the first place, although the system of sliding scales is generally based upon hostile combinations, and recognises as a necessary factor the outward form of trades unionism, and therefore in some degree intensifies the latent spirit of opposition which must underlie, in some measure at least, that outward form, yet the mere fact that the two combinations meet and effect a mutual arrangement, is a distinct step towards abolishing the open feud and mitigating the hostile spirit. Nor should it be forgotten that profit-sharing, as it has been hitherto practised in England, has refused in most cases to recognise the position of trades unions, and to extend its advantages to those who still adhere to an association, and that therefore the reconciliation of trades unionism with industrial partnership has scarcely as yet been subjected to a fair or decisive test.

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[216] *Cf.* for unwillingness of English employers to disclose profits, "Report of "Royal Commission upon Depression of Trade," Q. 12, 13, and 4022. Under the Ocean Scale even the average price is kept secret, and the rate of wages due by the scale is alone made known. *Cf.* "Sliding Scales in the Coal Industry," p. 45.

[217] *Cf.* K, p. 9.

In the second place, the sliding scale is based upon an identity of interests between employers and employed, so far as price is concerned. The object of both sides is to secure the highest price they can. "I have always considered," said Sir Rupert Kettle,[218] sitting as arbitrator in the Northumberland coal trade, "that the "interests of the employer and the workmen were identical until "price was secured;" and this identity is expressly recognised by the very construction of a sliding scale. So far there is a quasi-partnership. The profits of the employer are likely to be increased if prices rise—though this may indeed be outweighed by an increased cost of materials or machinery—and according to the sliding scale wages are also to follow the advance in prices. Here then we may be said to have a species of profit-sharing, for we have a sharing in the increased profits consequent upon higher prices; and there is also, it may be noticed, a similar share in losses if prices fall. Both parties have then an interest in the prosperity and adversity of the trade. There is indeed no sharing in losses beyond such as result under this system, as under the ordinary system of wages, in irregularity of employment, or such as follow peculiarly under this system as the consequence of lowered prices. But under a regular system of profit-sharing, as it is generally practised, the only share in losses would be of a similar nature.[219]

In the third and last place, the difficulty of making known the details of management to the workmen—an argument which is often advanced against a system of profit-sharing—seems to be met, to some extent at least, by the method adopted under the sliding scale, according to which accountants, appointed by either side, and sworn to secrecy, examine the books of the different firms. The chief obstacle then which remains, and which the system of sliding scales apparently tends almost as much to establish as to remove, is the divergence of interests between individual masters and the particular men in their employment. It breaks down indeed the divergence between masters and men as a body; but it seems to be calculated to intensify the corporate feeling on either side, and to hinder the growth of a sense of identity of interests between individual employers and individual bodies of workmen. From this point of view, we may fairly argue, there is no little truth in M. Leroy-Beaulieu's contention[220] that it is an error of classification to place the sliding scale ("le "salaire mobile") under the generic head of industrial partnership.

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[218] *Cf.* K, p. 36.

[219] *Cf.* "Profit Sharing," by Sedley Taylor, p. 66.

c (i). The difficulties attaching to sliding scales are similar in their general characteristics to those with which we found that arbitration was concerned. These were the possibility that the decision might fail to secure loyal adherence, the contentiousness connected with the preparation and discussion of elaborate arguments, and the difficulty of determining upon a satisfactory basis and of ascertaining accurate data. Of these three difficulties the second is reduced to a minimum under any system of conciliation, and therefore amongst these under a sliding scale. But it may be necessary to have recourse to arbitration to determine the basis of the scale; and in the iron trade the question whether the basis of the scale for 1880 should be 1*s.* 3*d.* or 1*s.* 6*d.* over shillings for pounds was referred for decision to Mr. Dale, and the latter figure[221] awarded. Even when the scale is actually in operation there may be occasion for arbitration in the case of local disputes; and it may be thought desirable by the one party or the other that the basis of the scale should be altered to suit unexpected changes in the nature of the trade. In these cases then negotiation and arbitration, and the contentiousness connected therewith, may be found in conjunction with a system of sliding scales. The third difficulty also is present. There is little question indeed about obtaining accurate data, for the books of the employers are readily opened to the inspection of the accountants, and this point will be sufficiently illustrated by the following extract from a local newspaper:—[222]

" Yesterday the certificate of the accountants showing the price " of Cleveland pig iron was issued at Middlesbrough. Under the " sliding scale the certificate will reduce the wages of Cleveland " miners one-half per cent. The certificate is as follows:—

" *Middlesbrough, 5th April,* 1886.

" To the Cleveland Mine Owners' Association, the Cleveland Miners' Association, and the North-Eastern Railway Company.

" Gentlemen.—In accordance with the provisions of a memorandum of agreement, dated 10th day of July, 1885, made between the Cleveland Mine Owners' Association of the one part, and the Cleveland Miners' Association of the other part, for the establishment of a sliding scale, to regulate the wages of all classes of men represented by the Cleveland Miners' Association, We the undersigned, having obtained and verified returns from all the firms specified in the said agreement, do hereby certify that the net average invoice price of No. 3 Cleveland pig iron for the three months of January, February, and March, 1886, ascertained in the manner prescribed by the said agreement, was 31*s.* 9·6–5*d.* per ton.

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[220] *Cf.* " Essai sur la répartition des richesses," par P. Leroy-Beaulieu, deuxième édit., p. 374.

[221] *Cf.* VI, p. 4.

[222] *Cf.* " Newcastle Daily Chronicle," 6th April, 1886.

"We are, Gentlemen, your obedient servants,

"MONKHOUSE, GODDARD, AND CO.,
"*Chartered Accountants, on behalf of the Cleveland Mine Owners' Association.*
"JOHN G. BENSON,
"*Chartered Accountant, on behalf of the Cleveland Miners' Association.*
"R. MACKAY AND CO.,
"*Chartered Accountants, on behalf of the North-Eastern Railway Company.*"

ii. (α) But there is considerable difficulty in fixing upon a basis. There must in the first instance be an agreement with regard to the general character of the basis. In most cases the selling prices are adopted by common consent as the suitable basis, and the variations in wages are to follow the fluctuations in prices. In the Northumberland coal trade this basis was generally recognised by masters and men in the arbitration proceedings to which we have referred—although other considerations were, it is true, introduced—and therefore it was to be expected that it should be readily adopted in their sliding scales. The same course has been followed in most of the scales throughout the country. In the scale which once existed in Shropshire, but was afterwards abandoned, the selling price of pig iron, and not that of coal, was taken as the basis, because the chief use to which the coal was put was the smelting of iron.[223] In the Cleveland scales again[224]—one of which regulated the wages of the ironstone miners, and the other those of the blast-furnace men, and the second of which seems to have been recently abandoned—the selling price not of the ironstone but of the manufactured product, the pig iron, and that too of a special quality, No. 3,[225] has been adopted as the basis. But it is not always easy to secure agreement to the principle that the selling prices should be the basis of the scale. In the arguments before the arbitrators in the manufactured iron trade there is, as we have seen,[226] a general understanding running throughout the cases and pleadings, both of masters and men, that wages should follow the selling prices of iron. But other considerations are again and again advanced, and the appeal to prices is by no means uniformly accepted. Sliding scales have been adopted on four occasions, and have been based upon the selling prices of iron; and on four occasions they have been abandoned.

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[223] *Cf.* "Sliding Scales in the Coal Industry," p. 55.

[224] *Cf.* "Sliding Scales in the Iron Industry," pp. 5, 6, and 8. VII, p. 6.

[225] This is done because "it has been found that practically the price of No. 3 "usually approximates to the average price of all the numbers combined.— "Sliding Scales in the Iron Industry," p. 6.

[226] *Cf. supra.*

In the majority of cases this result has been produced because it has been contended by the one party or the other, that other circumstances besides the mere selling prices should be taken into consideration. Sometimes it is the relative position of the iron-workers in other districts to which appeal is thus made; sometimes it is the condition of the labour market; sometimes an alteration in the cost of materials and the nature of the trade, and sometimes the unfairness of the particular relation of wages to selling prices on which the scale was originally based. The last of these contentions will occupy our consideration in a little while. At present we are concerned with the other three, and they may be practically resolved into two, the one being the cost of materials, and the other the state of the labour market.

(β) It is hardly necessary at this stage to argue that the arrangement which is to form the basis of the scale must be in accord with the traditions of the trade to which it is to apply, and must rest on a common agreement. If then these elements have been allowed to have weight in the past, they ought also to be considered in the establishment of a sliding scale for the future. From an economic point of view indeed there is considerable reason for having regard to them, but it is the traditions of the trade which are of the greatest importance. For the existence of combinations on either side banishes, as we have noticed, to a very great extent all economic considerations, so far at least as the determination of the exact basis of the settlement is concerned. The two parties do, it is true, stand towards one another in the position of buyer and seller of a commodity, and that commodity is labour. There is little, if any, trace of the old mediæval relation between master and men—between the craftsman working at his trade in his own house, and his journeymen and apprentices living with him and eating at his table. It is of little use to sigh for the revival of that relation, and it may even be questioned whether "distance" has not lent "enchantment to the view" in this—as in so many other cases—and whether that old relation did not possess as full a share of disadvantages as that which is supposed to belong to the "cash-nexus" of modern industry. But though the two parties have thus exchanged friendly, and in some respects even paternal relations, for relations of strict business, yet the negotiations into which they enter can hardly be reduced to a question of pure economics, nor is there any economic touchstone which can be brought into requisition to decide the matter.

In a certain sense, indeed, it may be said that the regulation of wages by selling prices does rest upon an economic basis, however the particular details of that basis may be arranged. It is in a measure in accord with the theory of wages, which starts not from a predetermined fund of capital accumulated in the past, and fore-ordained to be employed in the remuneration of labour, but—recognising the necessity of capital—from the price of the product, or more strictly the total amount of wealth produced, as the price of the product really means in the last analysis the amount of wealth which can be obtained in exchange for it. But it is to be noticed that the prices on which the wages are to be based under a sliding scale are the realised prices of a previous period, and not the prices "realisable" for the period during which the wages are to be actually paid. The rates of wages then may not be directly related to the price of the actual commodity for the production of which they are paid. And the economic theory of distribution again takes into consideration the question of the supply of labour and the demand for its services as well as the total amount of wealth produced; and this element is not explicitly recognised in sliding scales. It may well be that circumstances may arise which "cause labour to be low" in price while the "product" of labour is "relatively high," or which tend to produce a contrary result;[227] and the economic theory of wages takes account of this fact, while the sliding scale seems to ignore it.[228] On the other hand there is considerable truth in the contention of the employers in the iron trade to which Sir Joseph Pease alludes in one of his awards. "As[229] the article manufactured," they argued, "advanced in price by the action of the laws of "supply and demand, so would the desire to create the profitable "article occasion a greater demand for, and a consequent improved "price for, the labour which produced it; and" "thus the scale "produced by its gradations the correct figure for the payment of "the item of labour." Nor must we forget that the sliding scale is to some extent originally fixed upon a competitive basis, and that it is "historically" connected with competition so far as the action of competition has not been affected by combination or arbitration. It starts from a time when wages are to some extent settled by competition, or at least through the medium of combination, by the condition of the labour market. There may moreover be—and as a matter of fact there have been—readjustments from time to time of the regulations of the scales, if the circumstances of the trade or the labour market have conspicuously altered.[230]

[227] *Cf.* K, p. 36.

[228] *Cf.* I. R. C. Report, p. 33.

[229] *Cf.* IV, p. 23.

[230] *Cf.* I, p. 10. Since these lines were written the Northumberland coal

Thus a scale is not entirely divorced from competition, though it is certainly based upon traditions of trade rather than conclusions of economic science. In one colliery, indeed, Professor Munro states[231] that he has been told that "higher rates than those allowed by the "scale have been paid on account of the scarcity of miners."

With regard to the variation of other elements besides wages in the cost of production, there is comparatively little else to consider in the case of coal and iron mining save the selling price of the coal and iron. But in a manufacturing industry the cost of the raw material is also an appreciable element; and it is evident that a rise in prices by no means carries with it the ability to pay higher wages, if there is an equivalent—or more than equivalent—rise in the cost of the raw material. Here then there are elements in the cost of production, over and above wages, which can hardly be neglected with impunity; and the Derby sliding scale of 1874 in the manufactured iron trade of the north of England is said by the employers to have been arranged on a different basis from that of 1871, because of the increased cost of materials—of coal and of iron.[232] But there is no reason why this element should not be taken into consideration in framing the arrangements of a sliding scale, unless indeed it be an apprehension of complicating the scale by the introduction of too many variable elements. Such a difficulty as this, however—practically important as it undoubtedly is, and likely as it seems to delay the actual recognition of the point—is by no means insuperable; and it is surely because the principle of the sliding scale holds out such great promise of adaptation to these different contingencies, that Professor Munro has described[233] it as "the greatest discovery in the distribution of "wealth since Ricardo's enunciation of the law of rent." He strongly advocates its application to rent, and he notices the fact that the septennial average adopted in the payment of tithes is based upon a similar principle. A sliding scale, he urges,[234] may, and ought to, take into account those elements in the cost of production which are subject to considerable variations. It may allow from the first for those which can be reduced to an average, but the others should be introduced, if possible, into the scale itself as governing factors.

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owners have given the notice requisite for the determination of their scale, and demanded a reduction of 15 per cent. in wages (December, 1886).

[231] *Cf.* "Sliding Scales in the Coal Industry," p. 19.

[232] *Cf.* IV, p. 9.

[233] *Cf.* "Sliding Scales in the Iron Industry," p. 26. It has been applied in some cases to royalties. *Cf.* "Report of Royal Commission on Depression of "Trade." *Q.* 2313—4, 3570, 3609, 11823—6, 12178—9, 12353, 12408,— and to railway rates, *Q.* 2609.

[234] *Cf. op. cit.*, p. 4.

One other consideration, it may be noticed in conclusion, is met, and completely met, so far as seems practicable, by the sliding scale. For there can be little doubt that the appreciation of gold is at present a disturbing factor[235] of no small magnitude in industrial relations, and that in some instances workmen exhibit a somewhat pertinacious insistance upon nominal wages to the neglect of real wages—upon wages expressed in terms of money, to the neglect of wages expressed in terms of commodities. It is equally certain that an employer, who has bought his raw material and entered into his contract for wages or other matters when prices are high, and is then compelled to sell his manufactured goods when prices have become lower, is placed at a serious disadvantage. But the automatic adjustment of wages to prices effected by a sliding scale entirely avoids the difficulty occasioned by a *general*[236] appreciation of gold; and it would tell in a similar way in favour of the workmen's fair demands, if the monetary disturbance were caused by a *general* rise in prices and a depreciation in the metal adopted as the standard of value.

(γ). But the difficulties of a sliding scale are not entirely overcome when the general character of the basis on which it is to rest has been settled. For supposing that the relation between wages and selling prices is adopted as the basis, it then becomes necessary to agree upon a period when this relation is acknowledged to be in a normal condition. A time must be selected when, with the consent of both parties, wages bear a " fair " relation to prices; and the prices realised at that time are regarded as the " standard " prices, and the wages then paid are the " standard " wages. With this as a starting point changes in wages are to follow fluctuations in prices,—whether upwards or downwards—whether in advances or reductions. But this agreement upon a fair and normal relation is by no means easy of attainment; and the history of arbitration in the iron trade of the north abundantly illustrates this.[237] And even when the two parties have arrived at an agreement, the same history proves that a change of considerable magnitude in the circumstances of the industry may necessitate the substitution of a new relation for that originally adopted.

When this point has been satisfactorily settled, it becomes necessary to determine how often prices are to be ascertained, and wages revised; and this point may also give rise to dissension. A period must be taken which is not so brief as to imperil that stability of wages which is one of the chief benefits of a sliding scale, or, on the other hand, so protracted as to give to one side or the other, as the case may be from time to time, an excessive advantage, and thus to menace the other chief benefit of a scale—the stability of trade.[238] Another question has then to be settled. How great a variation in prices is to be held necessary to warrant a corresponding variation in wages? Here again an interval must be fixed which will fulfil the same two conditions as those just mentioned; and here the interval actually adopted varies in the coal mining industry from 1½*d.* in Cumberland to 4½*d.* under the Ocean scale, and in the Somerset scale every rise or fall in prices is to carry with it a rise or fall in wages.[239] Under the Cleveland scale[240] the interval is 0·96*d.* per ton for the ironstone miners, &c., and for the blast-furnace men it was 1*s.* In the manufactured iron trade of the north of England, and apparently also in that of Staffordshire, the interval was not less than 5*s.*[241]

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[235] *Cf.* "Third Report of Royal Commission on the Depression of Trade," Appendix B; and C.

[236] So far indeed as a fall or rise of prices can be said to be "general," in the sense of affecting with exact similarity the exchange of all commodities. *Cf. op. cit.*, p. 423.

[237] *Cf. supra.*

Nor must it be forgotten that the amount of the corresponding variation in wages has also to be determined; and this may proceed according to an uniform succession—the same amount of variation taking place at each successive stage—or a principle of graduation may be introduced. Thus under the Durham scale of 1884 the usual variation is to be 1¼ and 1 per cent. in wages for every 2*d.* in prices, but for the interval of prices between 5*s.* 10*d.* and 6*s.* 2*d.* the variation in wage is to be twice the ordinary rate.[242] Somewhat similar are the provisions of the Northumberland scale of 1879, by which an extra rise of 2½ and 2 per cent. of wages is contemplated for every advance of 1*s.* 4*d.* in prices, in addition to the ordinary variation of 2½ and 2 per cent. of wages for every 4*d.* of prices; and the scale of 1883 allows this extra rise at certain prices specially named in the agreement.[243] In the iron industry the Cleveland scale adopts a similar course.[244] Under the Cumberland scale,[245] the Ocean scale, and partly also under the Ferndale scale, the contrary principle is followed, and a lower percentage is recognised when prices are high. But Professor Munro thinks[246] that this principle is "unsound," and argues that if it be acknowledged that "wages "are as much entitled as profits to share in the benefit" of increased prices, the percentage ought to increase rather than diminish. Such an arrangement, however, may be made, as in the case of the Ferndale scale, in consideration of a change of the basis of the scale in favour of the men.[247] But Professor Munro's answer[248] to this plea is very cogent, when he urges that in such instances the "scale has not been constructed on a sound economic "basis." Or again, the concession may be made to counterbalance the recognition of a minimum wage—a principle which is recognised in the Ocean scale.[249] This condition of a minimum wage prevails also in the Bedworth scale, and, together with a maximum, in the Somerset scale.[250] It was introduced into the first Durham scale,[251] but there it seems to have occasioned no little dissatisfaction, and consequently to have been abandoned in succeeding arrangements. In the manufactured iron trade the same principle was inserted in 1881, in the Staffordshire scale of 1880, and retained in the scale of 1883, which lasted for the brief period of six months.[252] In the north of England difficulty seems to have arisen in the course of the negotiations[253] conducted in 1885 upon the question of the revival of the sliding scale, because the men insisted upon a minimum wage; and on other occasions they maintain that as wages have not in the history of the trade followed prices up to the highest level, so they ought not to follow them down to the lowest point. If then this principle of a minimum be introduced—and it is, we must remember, one of the cardinal points of a trades unionist policy—it seems but a natural consequence that a graduation in favour of the employers when prices are high should also be introduced. On this point however we must not lose sight of the consideration to which Professor Munro has drawn attention. He shows that the migration of labour, so far as it is operative, tends to establish an *economic* minimum; for if wages fall below this, men will then migrate to other trades where the rate of remuneration, allowing for advantages and disadvantages, is higher than that which they are themselves receiving. And this point is tacitly recognised[254] by the men in the iron trade in their arguments before the arbitrator upon this very question of a minimum wage.

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[238] The difficulty at present experienced with reference to the payment of tithe may be partly ascribed to the fact that the arrangements of the "sliding "scale" in this instance do not allow of a sufficiently *rapid* and *palpable* adjustment of tithe-payment to *existing* selling-prices.

[239] *Cf.* "Sliding Scales in the Coal Industry," p. 9.

[240] *Cf.* "Sliding Scales in the Iron Industry," p. 6.

[241] *Cf. op. cit.*, pp. 10 and 16; IX, p. 5.

[242] *Cf.* "Sliding Scales in the Coal Industry," p. 26.

[243] *Cf. op. cit.*, pp. 28 and 29.

[244] *Cf.* "Sliding Scales in the Iron Industry," p. 7.

[245] *Cf.* "Sliding Scales in the Coal Industry," pp. 33, 44, and 48.

[246] *Cf. op. cit.*, p. 10.

V.

(A). The third and last difficulty attaching to sliding scales is that possibility of departure from the arrangement which menaces the success of all methods of conciliation and arbitration. The exact legal validity of the agreement on which a scale is based is a nice point in theory, and apparently has not as yet been defined in practice. The question resolves itself into a moral rather than a legal obligation, and the strength of that moral obligation depends upon the representative character of the negotiating parties. The same difficulty exists, as we have seen,[255] in all cases of conciliation and arbitration, and it seems to be most satisfactorily met by the organisation of trades unions. Hence it is a question of no little interest to ascertain the number of trades unionists, and the proportion which they bear in each instance to the total number of workmen engaged in any particular industry. But upon this point it is hardly possible to arrive at any but the most general conclusions, whether we start from the one side or from the other. For on the one hand, that portion of the Census which relates to the Occupations of the people is confessedly very inaccurate;[256] and the returns must be accepted with the greatest caution. If, on the other hand, we commence our inquiry with the number of trades unionists, we have only imperfect, and in some instances approximate, figures on which to rely. If we take the returns of the Registrar, we have to recollect that registration is voluntary, and that there may be societies which are not willing to conform with the registration regulations. Mr. George Howell, who is probably more intimately acquainted with the inner working of trades unions than any other writer upon the subject, stated,[257] in October, 1882, that there were some 177 societies included in the chief registrar's returns, but that it was likely that there were not less than 600 "independent societies" in Great Britain. If again we were to endeavour to gather information by the toilsome method of collecting together trades union reports, we should at once be arrested by the insuperable obstacle that some societies do not issue reports, and that in many cases the reports are merely published for internal circulation.

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[247] *Cf. op. cit.*, p. 48. [248] *Cf. op. cit.*, p. 10. [249] *Cf. op. cit.*, p. 44.

[250] *Cf. op. cit.*, p. 50. [251] *Cf. op. cit.*, p. 21.

[252] *Cf.* "Sliding Scales in the Iron Industry," pp. 16 and 17.

[253] *Cf.* VI, p. 17; IX, p. 4. [254] *Cf.* I, p. 15; IX, p. 12.

The best information to be procured upon the point seems to be that contained in the reports of the annual trades union congresses,[258] to which are prefixed the names and addresses of the delegates attending the congress from the various societies, together with the number of the members which they represent. But even here we must not forget that some societies do not send delegates, and that the numbers seem to be only approximate.[259] Nor are our difficulties at an end when we have reached this point. For suppose that we take for example the boiler-makers and iron shipbuilders' union, with a membership of 28,500, according to the congress report for 1885, and of 28,212, or 27,695 according to the annual report of the society itself. If we then turn to the census returns for England and Wales for 1881, and endeavour to find out the total number of workmen engaged in these occupations, we can indeed ascertain the number of so-called "boiler-makers" (26,170), but when we look at the heading of "ship-builders" (21,741), we are told that it includes the builders of boats and barges as well as of ships. Or to take another illustration, according to the congress report, the Amalgamated Association of Operative Cotton Spinners includes 16,115 members; but the census returns add together into one sum all the workers engaged in some of the chief branches of the cotton industry, and at any rate do not distinguish between spinners and weavers. In the iron industry, once more, the Ironfounders' Friendly Society of England, Ireland, and Wales has a membership of 12,410, the Associated Iron Moulders of Scotland number 5,500, and the National Amalgamated Association of Iron and Steel Workers records a muster-roll of 2,000 members. But here the census returns for England and Wales are very vague, and merely enumerate "iron and steel "workers;" and apparently it is only "nail makers" and "chain "and anchor makers" who are specially distinguished. Or again, take the case of plumbers and tailors. The census returns may include master-plumbers and master-tailors, and enumerate in the one case 37,400, in the other 160,648. But the United Operative Society of Plumbers of Great Britain and Ireland numbers 2,645, and the Amalgamated Society of Tailors 15,378.

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[255] *Cf. supra.*

[256] *Cf.* Census returns, vol. iv; general report, sec. vi.

[257] *Cf.* "Nineteenth Century," October, 1882, the Financial Condition of Trades Unions.

[258] *Cf.* "Trades Union Congress Report," 1885, pp. 1—6.

Thus we can at the best arrive at merely general results. Mr. George Howell, for example, states[260] that in "a few instances" the proportion of society to non-society men amounts to two-thirds, or even three-fourths, of the workmen in a trade; that the general ratio is one-third society men to two-thirds non-society men; and that even to command one-third of the workmen in a trade throughout the length and breadth of the country, the trade must be "exceedingly well organised."

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[259] According to the "Trades Union Congress Report" for 1885, the number of the Boilermakers and Iron shipbuilders is 28,500; but according to the annual report of the society itself for 1885, it is in the summary table 28,212; and in the secretary's report dated 17th March, 1886, in which a decrease of 1,200 during the year is noticed, it is 27,695.

Cf. "Trades Union Congress Report for 1885," p. 1; "Report of the Boiler-"makers' Society," pp. xi and xii. Similarly the Amalgamated Engineers are put down in the Congress Report as 51,000, and in their own annual report, issued in May, 1886, as 51,689, and as 50,681 at the close of 1884.

Cf. "Trades Union Congress Report," p. 2; "Newcastle Daily Leader," 7th May, 1886.

[260] *Cf.* "Nineteenth Century," October, 1882.

There seems moreover to be a capriciousness about the growth of trades unionism not unlike that which characterises co-operation; and it may be noticed in passing that the two movements may almost be said to be coincident in the general mass of their leaders and adherents. An official of one of the trades councils in the north of England informed me that the principles of unionism were strong in Lancashire, weak in the Midlands, and fairly vigorous in the North.[261] A similar fluctuation of strength is apparent between trade and trade; although in this case also for the reasons we have previously mentioned, our conclusions must be of a general character. The miners appear on the whole to be well organised, and the successful establishment of sliding scales is no small evidence of this. In Northumberland and Durham not only do the Miners' Associations number respectively 12,500 and 20,000, but in the former county there is also a Mutual Aid Association formed by the Deputies, and numbering 475, and a Colliery Enginemen and Firemen's Mutual Protection Association, with a total membership of 406;[262] and in the latter[263] the Durham Enginemen's Association, numbering 1,258, the Durham Colliery Mechanics' Association, numbering 2,000, and the Durham Cokemen's Association, numbering 1,500, are expressly named as parties to the agreements for the scales of 1879, 1882, and 1884, in addition to the Coal Owners' Association and the Miners' Association. The Amalgamated Association of Operative Cotton Spinners has a membership of 16,115 or 16,500, and is stated[264] by the secretary in his evidence before the Royal Commission on the Depression of Trade, to include "nearly the whole of the grown up men" that are in the trade—the balance of the 54,000 operatives or so engaged in the cotton spinning industry consisting of "young persons" and "children." The Northern Counties Amalgamated Association of Weavers numbers 40,000, the Amalgamated Society of Carpenters and Joiners 25,750, the Operative Masons' Society 12,000, and the National Union of Boot and Shoe Riveters and Finishers 10,317, according to the congress report. But according to the same report the Operative Bricklayers' Society only reaches the figure of 6,069 members, and the United Operative Plumbers' Association that of 2,645 members. The evidence furnished by the membership of the different trades councils exhibits a similar fluctuation, although we must remember in this case that the councils are voluntary organisations—as indeed the unions themselves theoretically are—and that therefore they must be regarded as indications of the vigour of unionist principles rather than of the actual number of unionists. In Oldham the council represents 10,000, in Manchester 7,000, but in Leicester only 1,950, and in Newcastle 2,000. In the last place indeed it is a curious fact that, according to a statement[265] made by Mr. Laird, the president of the Newcastle Trades' Council, at the congress of 1885, "about two-thirds" of the men employed at the well known ordnance and engine works of Sir William G. Armstrong, Mitchell, and Co., who came out of work in consequence of a strike in the autumn of that year, "belonged to "no association at all."

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[261] *Cf.* I, p. 14.

[262] *Cf.* "Newcastle Daily Leader," 1st February, 1886.

[263] *Cf.* "Sliding Scales in the Coal Industry," pp. 22, 24, and 26.

[264] *Cf.* Second Report, *Q.* 5038, 5059, part ii, Appendix D, p. 72, ans. 3.

A casual glance at the answers furnished by the officials of different trade societies to certain questions addressed to them by the Royal Commission on the Depression of Trade,[266] will supply confirmatory evidence of the varying strength of trades unions. A few isolated indications may also be gathered from the evidence actually given before the commissioners. Thus it appears that, "with few exceptions," trades unions are "not at all in a "flourishing condition in Sheffield at the present time.[267] At Leeds "there are some associations controlling the action of the "weavers," but the woollen industry is "perhaps freer than most "from associations of that kind, owing to the variety of work "which is involved in the woollen manufacture."[268] At Bradford, where the work is also diversified, it seems that "there is "no trade union connected with the staple industries of the town,"[269] and at Macclesfield[270] the silk manufacturers express their satisfaction at the practical disappearance of trades unions from their town and industry. On the Clyde again a "considerable "number of engineers" and a certain amount of the iron ship-"building class, do not" belong to the unions.[271]

(B). The variety of detail in the trade, to which the manufacturers of Leeds and of Bradford refer in their evidence before the commission, may present hindrances to the organisation of trades unions. But it has not by any means proved fatal to conciliation; for the success of the principle in the hosiery trades of the Midlands has been conspicuous. And yet here—as has been shown in a paper read before the British Association at Dundee in 1867—[272] there was as much diversity of minute detail as could well be conceived. There was variety of goods, variety of prices, and variety of workers. This diversity of detail is quite consistent also with the institution and the successful working of a sliding scale; and as a matter of actual fact local variations in wages are recognised in the coal and iron industries to which the principle has been so successfully applied. Jevons indeed goes so far as to maintain[273] that conciliation is likely to be more successful where the multiplicity of detail is greater; for in these cases the necessity of some arrangement—some schedule of prices—must be obvious to the dullest observer. Nor is the absence of trades unions so valid an objection to a system of conciliation as to present insuperable obstacles to its success. For a rudimentary form of organised representation may conceivably prove to be an efficient substitute for an union, so far as the regulation of wages is concerned.

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[265] *Cf.* Report, p. 43.

[266] *Cf.* Second Report, part ii, Appendix D.

[267] *Cf.* Second Report, *Q.* 2914 and 2725.

[268] *Cf. op. cit., Q.* 6347.

[269] *Cf. op. cit., Q.* 3976—7.

[270] *Cf. op. cit., Q.* 7239—42, 7394, and 7493.

[271] *Q.* 12020. *Cf.* also *Q.* 12105.

[272] *Cf.* Statistical Society's *Journal*, vol. xxx, December, 1867, pp. 548—56,

And, on the other hand, the presence of an union is not an absolutely sure guarantee for the success of principles of conciliation. For, in the first place, there is a difference in industries. Some, like the cotton and woollen trades, are localised in a high degree; some again are settled in different centres, such as the engineering, the shipbuilding, and the mining industries; some may be found in every town, and in this class we may place the building, the printing, and the domestic trades. If then there is only a comparatively small number of men located in a particular district, the trades union organisation does not seem to secure the undoubted advantage of effecting negotiations on behalf of a large body through the medium of a few representatives. It would rather be necessary, it appears, to create a number of little boards of conciliation, and to institute a number of minute sliding scales in each district; and this might entail considerable expense. But, on the other hand, it is conceivable that the representative system might effect a solution of this difficulty; and the general arrangements of a sliding scale may, as we have seen, admit of almost innumerable local diversities and sectional adaptations. And so the advantage of the official experience and influence of the central executive may perhaps on a representative basis be satisfactorily combined with local variety of detail. The difficulty then of instituting a system of conciliation is certainly increased by these circumstances, but it is not rendered insuperable. Where indeed the industry, though diffused in different centres, is yet concentrated in considerable strength in particular localities—like the manufactured iron trade, and the

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Arbitration in the Hosiery Trades of the Midland Counties, by E. Renals. *Cf.* also Report by J. D. Weeks, sec. iii, p. 5, &c.

[273] *Cf.* "State in Relation to Labour," p. 156.

shipbuilding trade, and to some extent also the engineering trade—this difficulty is reduced to a minimum. For the case is assimilated for all practical purposes to that of industries which are highly localised; and as a matter of actual fact boards of conciliation have been formed in the iron trades of the north of England and of Staffordshire, and even in the building trades at Wolverhampton and Birmingham.

In the second place, it may be stated as a general truth that the success of the conciliatory system is most likely to be secured where there is at the very beginning a kindly feeling between masters and men, and that it is more probable that those feelings will be engendered where the same men come into contact with the same masters, and the general body of men and masters is not always changing in its component parts. It must not however be forgotten that the relations of masters and men in the manufactured iron trade of the north of England seem to have been of the most unfriendly description before the institution of the board of conciliation, and yet the board has undoubtedly been a conspicuous success. In the Northumberland coal trade also, despite of the friendliness existing between masters and men for several years—a friendliness to which frequent reference had been made before arbitrators, and a friendliness which had for long secured the peaceful settlement of industrial relations by amicable negotiation—that friendliness was strained to the utmost immediately before the introduction of the sliding scale. These facts are sufficient to warn us against a despondent and hopeless inactivity, although they do not seem to affect the general correctness of the statement we have advanced.

Discussion *on* Mr. L. L. F. R. Price's Paper.

Before the reading of the paper,—

The Chairman, Professor H. S. Foxwell, M.A., a Vice-President, said the late Mr. Arnold Toynbee produced a very remarkable impression both in Oxford and London by the earnestness and freshness of his economic teaching. His sudden and premature death was felt as a public calamity; and a very general desire was expressed to commemorate in some way both the spirit of the man and those principles in the eager advocacy of which he literally wore out his life. The result of this feeling was the foundation of the Toynbee Memorial Fund; with the double purpose of keeping before the public some representation of the principles and teachings with which Arnold Toynbee's name will always remain associated, and of carrying on in some measure the economic researches in which he laboured with such keen zest and brilliant ability. That fund had been applied to the provision of an annual course of lectures to be delivered in some important industrial centre of England, and to be followed up by an investigation into such features of the industries of the centre selected as the lecturer might think it best worth while to study and report upon. The first lecturer appointed under this scheme was Mr. Price; and the result of his work had been such as to completely satisfy the trustees, both as to the general soundness of their scheme, and as to the way in which he had carried out their intentions in framing it. Mr. Price was first sent to Newcastle, partly on account of the former connection of Arnold Toynbee with that town, partly on account of the social activity and industrial importance of the district. Finding himself here in the centre of a great mining population, Mr. Price very properly applied himself to the consideration of one of the most remarkable institutions of the mining industries, viz., the sliding scales by which mining wages had for a long period been adjusted. Professor Munro, who himself had published two very valuable papers on this subject, told them that there were no less than 120,000 men receiving wages under the operation of the scales in the coal mining industry alone, besides as many more whose wages were indirectly regulated by them, so that in this industry alone a total population of about a million was interested in the scales. In the iron industry the scale had prevailed to an almost equal extent, but it was unfortunately abandoned in 1883. He hoped that that abandonment was not permanent, and that a rectification of the principles upon which the scales were constructed would result in the resumption of the system. He could not believe that it would be long tolerated that wages should be left to be constantly at the mercy of the hagglings and fluctuations of the weekly market. Some more permanent method of adjustment was indispensable. Whether or not that would be found by the method of sliding scales remained to be proved; but it would certainly be found by some similar method, depending upon a joint participation and consultation between the masters and men who were jointly interested in the respective industries. It was on account of this element of partnership, which seemed to be involved in the idea of the sliding scale adjustment, that he found himself most strongly interested in the working of the scales; and it was therefore with very great interest that he welcomed the paper which Mr. Price was about to read.

(The Paper was then read.)

The Chairman said Mr. Price had treated the subject from a neutral point of view. They had present representatives of both sides in the industrial controversy, and he would ask Mr. Jeans, who represented the very important Iron and Steel Institute, to open the debate.

Mr. J. S. Jeans said he hoped in any observations he might make he might be as neutral as the author of the paper had been. He did not come there as representing any association whatever. He had sent a copy of the paper to Sir Bernhard Samuelson, who, in acknowledging it, wrote: "The exhaustive paper on sliding scales to be read by Mr. Price at the meeting on the 21st, will doubtless not only be received with interest on that occasion, but will, I feel convinced, be regarded, and deservedly, as the standard treatise on a subject as difficult as it is important;" an opinion in which he (Mr. Jeans), having some little knowledge of the difficulty of the subject, entirely concurred. Sir Bernhard continued: "The creation of councils of conciliation in the north of England has been of incalculable benefit to masters and men in the trades which have adopted them. Such councils demand, as a necessary preliminary, organisation on the part of the masters and of the men. The mere existence of these organisations did not of itself prevent great loss to both parties by strikes and lock-outs in the trades which did not also establish councils of conciliation. The adoption of the principle of a sliding scale, and the establishment of such scales, have tended to facilitate the adjustment of wages. The elements determining the figures of a sliding scale vary from time to time. Amongst them the principal one is the general scale of wages throughout the country. But this element, and most others which enter into the determination of the figures of the scale, act over relatively long periods. The action of a fairly constructed scale over a short period should represent the effect which the demand for labour would have on wages in the particular trade over such period. This demand will over a short period be approximately determined by the price of the commodity produced, and this price will again determine the profits of the trade. Hence, over a short period, a fairly constructed sliding scale will cause the profits of the body of masters to be shared by the body of men. Sliding scales require to be corrected from time to time in accordance with the elements which determine wages other than the fluctuations in the demand for labour in the particular trade to which they apply. But experience has, in my opinion, shown that such correction need not in the trades of the north of England take place oftener than, at the soonest, once in about two years." The question was whether conciliation, arbitration, a sliding scale, or co-operation was, under all the circumstances, the best suited to meet the varying requirements of industries. With industrial partnership he had had some little acquaintance, having watched its progress in the coal and iron trades. On the face of it it was an extremely plausible system, and seemed one likely to obviate protracted and serious disputes; but its great defect was that while they could of course keep the workmen in tolerably good humour so long as there were any profits to share, when the profits disappeared, as they had frequently done over protracted periods, wages had to be paid to the men all the same; although under the system of industrial partnerships, as generally understood, they would scarcely be entitled to receive wages in the entire absence of profits. Since therefore it was impossible to get rid of the constant liability to the entire disappearance of profits in every industry, he thought they might regard industrial partnerships as virtually defective. He did not quite agree with Mr. Mundella that the best system to adopt was conciliation, or what he called the haggling of the market. It neither established any scientific principle, nor gave a standard to which they could refer as being always available and as doing absolute justice between employer and employed. It was somewhat different with arbitration, but they must have conciliation as a condition precedent. And arbitration after all was more subject to defects than the alternative principle of the sliding scale, for in arbitration courts many questions were usually imported that were entirely extraneous to the matter at issue. With the sliding scale the case was different. The main difficulty was that it was not always easy to fix the proper relation of wages to prices. They must have a basis to begin with, and that was necessarily a matter of adjustment. After they had established such a basis, it might be entirely altered in a few months or years by the adoption of new appliances or processes. It was quite conceivable, for example, that in certain districts the ultimate introduction of coal cutting machinery might entirely revolutionise the coal industry, and thereby seriously affect the present relation of wages to prices. There could be no doubt that this was one of the most important industrial problems of the time; and he was extremely glad that the Society had afforded an opportunity for its discussion.

Mr. J. Burnett said Mr. Price in speaking of the strike of ship builders on the Tyne omitted to notice a very important point, and one which accounted to a very large extent for the attitude assumed by the men, viz., that in at least two of the largest establishments at the time when the employers gave notice of reduction of wages large Government contracts were being executed, the fulfilment of which was bound to occupy a considerable length of time. Those contracts had been taken at a price long before the notice, and the men very naturally asked why their wages should be reduced. He was certain from what he knew of the history of that dispute, that if the employers had undertaken that on those contracts the reduction should not be enforced, the men would have been perfectly satisfied, and the strike much more readily settled than it was. The fact that the men out on strike did not receive the "strike allowance," was due to their coming out without the full sanction of the executive of the society. The author thought it was better that the umpire to whom any dispute was referred for arbitration should be a man engaged in the special trade affected. The workmen generally would object to this, because they would naturally feel that the umpire in such a case would be too much interested in the dispute to be a fair and impartial judge. This objection would not apply with full force to every employer of labour. There were employers who had been accepted as umpires, and he might specially refer to Mr. David Dale, of Darlington, who had several times been accepted by the ironworkers in that locality as sole umpire. The best and most satisfactory umpires of whom he knew anything were men who had not been connected with the special trade, such for instance as Lord Derby, Lord Herschell, and Sir Richard Cross. Men possessing the judicial intellect should be selected for that work, but great caution should be observed in not selecting lawyers who were also politicians, with a reputation to make. In like manner local politicians should seldom be selected as umpires in their own locality. Speaking of arbitration generally, he was inclined to give it somewhat higher rank than Mr. Price had done. Mr. Price dwelt strongly upon the fact that the element of contentiousnes entered more into arbitration than into boards of conciliation; but he (Mr. Burnett) was not so sure about that. Boards of conciliation were not always so peaceable as they might be led to infer from the paper, and they might possibly have more contentiousness than was the case with an arbitration. A perfectly impartial and judicial chairman presiding as umpire over an arbitration, would act so well as a peacemaker that contention would be kept within due bounds, and he would be able to preserve more perfect order than an employer who usually presided over a board of conciliation would be able to do. The very fact that all sorts of arguments were introduced before a board of arbitration, was to his mind one of the reasons why the result of its decision was more likely to be accepted by the men, because there was nothing that gave them more satisfaction than to know that every possible argument, however remotely bearing upon their interests, had been brought forward. The expense was an important element, but it might be very much less in the north of England if the arbitrations were carried on in a different way, and were not, as was the usual custom, adjourned to London, whereby the costs were swelled to a considerable extent. But whatever the expense might have been, it was undeniable that those arbitrations had made the boards of conciliation possible, and that the sliding scales had originated not so much from the boards of conciliation as from the various arbitrations which had taken place from time to time, because it was in those arbitrations that the larger amount of knowledge was conveyed to the minds of the men as to the circumstances of the employers. Whatever the defects of the sliding scale might be, it should always be borne in mind that it had been absolutely effective except in rare instances in preserving perfect peace between the employers and employed, whereas before its adoption the state of the iron trade in the north was one of continual tumult and warfare. He agreed that sliding scales could not be considered as in any form a co-partnership, because they were all based upon the selling price of the article in the market. The selling price did not introduce in any way the consideration of the question of profits, and so long as that was not involved, he could not see how sliding scales could reasonably be said to be in any form an application of the principle of industrial co-partnership. Mr. Price called attention to the difficulty of obtaining accurate information as to the absolute number of men who belonged to the trade unions of their respective trades. There was a certain amount of difficulty, but very many societies were not represented at a trade union congress, and in some instances the second society of a special trade was not represented at all, and therefore the report of such congress did not give an adequate idea of the number of men who might be organised in any particular trade. The important point was this, that however small the number of men of a trade who constituted the union, the very fact that they were organised gave them a strength and stability, and an influence in the trade over those who were not organised, and absolutely made even a small union supreme in its power over that particular trade, and therefore the question of the relative strength of a union to the whole of the men engaged in the trade was of secondary importance.

Professor Sidgwick, in speaking of the principle upon which the division between the employer and employed should be made, said he did not attach a fundamental importance to its satisfactory theoretical solution. The great point either in an arbitration or the determination of a sliding scale was to prevent a conflict, and if that end was achieved, it was perhaps a question of rather speculative interest whether it was achieved upon principles which commended themselves to outsiders. The sliding scale which, *pace* Professor Munro, he would call an "invention" rather than a "discovery," was a practical expedient, and not an increase in their knowledge of economic laws or facts; and hence, being a practical expedient, what it had to do was to succeed in practice. Perhaps an arbitrator might in some cases be more likely to achieve that result if he allowed himself to be guided by his practical instinct rather than by any explicit theoretical principles. At the same time, as all arbitrators and framers of sliding scales were after all aiming at reason and justice in their determination of the questions before them, it might do some good, and could do no harm, if those who contemplated the subject from the outside made some attempt to get the principles clear. Although agreeing with Mr. Price and Mr. Jevons that economic science could not furnish any complete solution of the problem how to divide the produce of industry between opposing combinations of masters and men, he at the same time conceived that it must have something to say in any reasonable determination of the dispute. Whatever principle be adopted for settling the conflict, it must be some principle of distribution of gain and loss; and though economic science could not determine the principle, it must influence its application by giving a systematic view of gain and loss to both parties, and grounds why a particular kind of gain or loss should or should not be taken into account. In discussions on a sliding scale, the proposal that there should be a minimum was sometimes defended upon a philanthropic principle—what was called in Ireland the "live-and-thrive" principle; but he did not think it possible to apply such a principle generally under existing social conditions. So far, however, as the labourer could and would transfer himself to some other industry if his wages fell below a certain point, there was an economic minimum provided; and he thought that the point to which a sliding scale should descend might be determined by the best estimate that could be made of this economic minimum, where it was at all ascertainable. In that case it might perhaps be well if the scale were graduated so as to come down to the minimum, not abruptly, but by gradually diminished reductions: if so he thought there should be correspondingly a gradually reduced rise of wages when prices rose, to compensate the employer; not merely on the ground of equity, but to make it worth the employer's while to continue the business. He thought it should be borne in mind that the method of the sliding scale or arbitration differed importantly in economic effect from the system of participation in profits. No doubt the sliding scale was a participation of gain to a certain extent, but the great difference between its moral operation and that of the participation of profits was that it had no tendency to produce a sentiment of *esprit de corps* in the workers which would induce them to make any sacrifices for the business in which they were engaged. Regarding the question in the abstract, he thought that the only principle at once equitable and applicable in the determination of a sliding scale would be this: to take certain rates of wages, prices, and any other regular determinants as a starting point, and then aim at such a division of subsequent gain or loss between employers and workmen as would keep the proportion of average wages to profits unaltered, within the limit within which the arrangement would hold together at all, except so far as graduation was introduced to keep wages more stable, as he had before suggested. The starting point must be more or less arbitrary, but it might correspond approximately to the average of more recent experience. Supposing the starting point fixed, he thought that in a thoroughly satisfactory sliding scale not only changes in price of products, but any general changes in important elements of cost of production must be taken into account, except that he did not think it practicable to investigate and allow for changes in the average efficiency of business management—as the men had once or twice urged in arbitration cases—

any more than they could take account of changes in the average efficiency and care of workmen. But all changes in cost of materials, and also any important and generally adopted alterations in costliness of processes, should be reckoned in. He thought, however, that changes in the value of money relatively to articles of consumption were irrelevant, except so far as they might affect the economic minimum; since, speaking broadly, such changes, when completed would have an equal effect on the real value of the money profits and money wages.

Professor MUNRO thought the sliding scale involved both an invention and a discovery. The man who framed the first sliding scale undoubtedly might be considered an inventor; but that first sliding scale was based upon a principle that had been discovered by the masters and men, viz., that the employer and employed were engaged in a common industry, and that the produce of that industry should be shared between them. The sliding scale only professed to regulate one aspect of the relations of employer and employed, viz., the amount of wages paid by the one party to the other. It had been suggested that partnership would produce a greater *esprit de corps* amongst employés; but if it were remembered that the amount of wages was only part of the argument between the two sides, and that there were many other matters besides wages in which the working men were interested, it would be found that apart altogether from the regulation of wages, the different unions and associations had sufficient matters of common interest to produce a very strong *esprit de corps* amongst their members. The history of wages during the last twenty-five years showed that many of the most important strikes, though apparently resulting in no benefit whatever to the men, yet were of extreme importance as establishing a principle for which the men had been contending, and that was the right to a voice in the management of the concern. Mr. Price had not entered on the question of how far the sliding scale principle was applicable to industries other than the coal and iron trades. That question could only be answered by those who were engaged in the particular industry in question, because each industry would require to have its own special characteristics taken into account in framing a scale. On the question of mining royalties there was no doubt that here was a large field to which the sliding scale was perfectly applicable. No disturbing element came in. The landlord claimed as his royalty a fixed sum per ton, and there could be no difficulty in making the royalty vary with the price of coal. Indeed there was little doubt that the sliding scale was applicable to the regulation of rents of almost every description. The application of the sliding scale to agricultural rent had been strongly advocated by the late Lord Lyttleton, who offered to adopt it in fixing the rents of his tenantry; and during the last year it had been applied with great success by Lord Tollemache in Cheshire. Industrial partnerships had been formed in many districts in the North of England, where in numerous instances the workers in the mills were part owners of the concern. He was rather inclined to suggest that the right to a share in management would probably be the stepping stone towards partnership, for if it was once admitted that the workpeople were entitled to a voice in what was called the management of the concern, then with management there must come responsibility. The right to a voice in the management was a claim that had always attracted attention amongst the thoughtful minds of the working classes; and he ventured to think that this claim would be pressed on the employers in the future, and that with considerable success.

Reverend W. Cunningham said there were two different principles on which sliding scales for wages might be arranged. They might be made to follow the changes in the requirements of the labourer considered as a consumer; this was the method adopted in this country for a couple of centuries, while the justices assessed wages according to the plenty or scarcity of the times; but this method did not seem to have given much satisfaction, and there was no proposal to reintroduce it now. The second principle was that of making wages follow the variations in the price of the product. In some ways this seemed a less satisfactory method, because of the great variations which might take place in prices from wholly extraneous causes, and therefore he could not agree with those who held that it was desirable that wages should follow the fluctuations of prices as closely as possible. On the other hand he could see no hope of combining the two principles so as to calculate out a better result; but it was conceivable that the methods which had been described in the paper, by which the scale of prices was followed, but not too closely, might work out as fairly as any other. He desired as an intimate friend of the late Mr. Toynbee's, to express his satisfaction that his memory was likely to be kept alive by such excellent work as that to which they had listened that evening.

Sir Rawson Rawson said he should like to say one word with regard to Mr. Price's work. From correspondence with Mr. Price during the last fortnight, he had learned how much they were indebted to him for the trouble which he had taken in the preparation of this paper, a digest from a still longer one which he had the pleasure of stating would be published by the Toynbee trustees. He would add his own thanks to Mr. Price for the readiness with which he had assisted him in his endeavours to raise a useful discussion upon this subject brought before them.

The Chairman was sure they would all agree with him as to the very high value of the paper; for never before had the subject been so comprehensively discussed. Mr. Price could have done no greater service than that of inviting the attention of the public generally to this question. Personally he must still agree with Mr. Price that the sliding scale system would prove to be a step towards partnership, towards a share in the direction as well as in the profit of the joint industrial undertaking, and as such he welcomed the movement most heartily. He also welcomed it as a step towards greater industrial stability. He could not agree with the statement quoted from Mr. Mundella, that the best possible principle of wages adjustment was that provided by the haggling of the market. It was only by some arrangement of the kind they had been considering that evening, that the hearty co-operation and loyalty of those engaged in an industry could be thoroughly called forth. The feeling of a common interest was essential to the real success of joint industrial enterprise.

Mr. Price, in reply, said he had purposely avoided entering into the merits of the contention involved in the shipbuilding strike mentioned by Mr. Burnett, but no doubt the point of the existence of the contract was a very important one. With reference to an umpire being a member of the special trade, his paper showed that the balance of his opinion was opposed to that course. The special difficulty was brought out in the fact of the representative character of the man at the board. Not only were the representatives of the men at the board affected by the question but their constituents. Those constituents had only acquiesced in the selection of the arbitrator through the medium of their representatives; they had not been brought into direct personal contact with him at the board, and therefore they very naturally, in many cases, were likely to entertain suspicion of his perfect fairness and justice. The difficulty was best met by the re-appointment of arbitrators not connected with the trade, but who, by sitting on successive occasions would gain a knowledge of its history and technicalities. He did not think the system of industrial partnerships had had a fair trial in England. It might be possible in the future to reconcile the principle of trades unionism with that of industrial partnership, and the sliding scale might help towards producing that result. With regard to the ideal sliding scale as sketched by Professor Sidgwick, it was a very tempting picture, but he was afraid, when they looked at the difficulties which had to be encountered in the actual operations of sliding scales at present, and in the work of conciliation and arbitration, that that ideal, which would take into account so many elements, was a considerable distance off. No doubt an immense advance had been made in the past, and it was likely that immense advances would be made in the future, but he would be a bold prophet who endeavoured to predict the course of industrial relations. He was very grateful for the kind remarks which had been made upon his paper, and thought that a great deal of the credit which had been ascribed to it should have been given to the pamphlet by Mr. Spence Watson, and in a still higher degree to Professor Munro's two pamphlets on the "Sliding Scales in the Coal Industry and in the Iron Industry," which really first attracted his attention to the subject.

A vote of thanks was then accorded to Mr. Price, and the meeting closed.

The Editor has received from Mr. Price the following remarks of gentlemen who were unable to be present and take part in the discussion, but who take a deep interest in the subject of Mr. Price's paper:—

Extract from Professor Alfred Marshall's letter.

"*Balliol Croft,*
"*Madingley Road, Cambridge.*

"MY DEAR PRICE, "18*th December*, 1886.

". . . . . . Had I been there (*i.e.*, at the meeting) I should have said something as to my hobby that a perfect sliding scale for wages in (say) the iron trade should be made of two items—a producer's and a consumer's. The producer's should be + the [price of a tons of iron − (price of b tons of iron ore + price of c tons of coal + perhaps some other things)]. The consumer's item should consist of the sum of the prices of certain amounts of the things chiefly consumed by the ironworkers.

"This plan would, I think, make the workmen share in the good and ill fortune of their employers with the least risk to themselves.

"I don't know whether you have argued in this direction. If you should wish to mention my views at the meeting you are at liberty to do so.

"Yours, &c., ...
"ALFRED MARSHALL."

Mr. Ralph Young's letter.

"*Northumberland Miners' Mutual Confident Association,*
"17, *Picton Place, Newcastle.*

"DEAR SIR, "20*th December*, 1886.

"I quite agree with you that there is no uniform method which can be applied with certainty of success in all industries and to every dispute.

"Where there is no organisation, no agreement made will bind persons who do not recognise as authorities those who made it; and it is not, I believe, until long after men have become organised that it is possible for them to adopt or accept with any sort of permanency the higher forms of conciliation such as a sliding scale or arbitration.

"Men who have never, through lack of organisation, been able to do anything to improve their condition, are generally too impatient to effect much good for a long time after they combine. It is seldom indeed that a strike of more or less magnitude has not either immediately preceded or succeeded the formation of a union.

"In the infancy of unions, disputes are generally settled either by a strike or negotiation; and after they have been a little more matured, arbitration is generally the method adopted, then the higher, and, up to the present, certainly the best, viz., a sliding scale.

"The only defect I think in connection with sliding scales as at present formed, is that no provision is made to give extra or additional relief to employers when price has fallen below the cost of production. In order to illustrate what I mean I will suppose a case (this really is the case of the Northumberland scale) where the standard of wage is fixed on a price at which the employers are just getting a fair return on their capital; the price 4*s*. 8*d*., and the wage 5*s*. 2*d*. For every rise or fall of 2*d*. in price the workmen are to suffer or receive an advance of $1\frac{1}{4}$ per cent., with an extra advance of $1\frac{1}{4}$ per cent. at every 8*d*. rise in price. Now as soon as ever price falls a little below the standard price, the employers not only soon receive no return, but sustain an actual loss. This loss, it is well known, cannot go on for a very long time before the pits come to a stand. What, therefore, I think is needed to amend this defect is, especially in the case of coal that is exported or other goods that enter into competition with foreign goods, that the fall in wages should be a larger proportion. and the stages at which the falls take place a little quicker when price has fallen to or below the cost of production than they are immediately above the standards. I would further provide for a larger proportion of the advance in price to be given to the workmen at a point when the employers commence to get very large returns on their capital.

"I am, yours truly,
"R. YOUNG.

"L. L. F. R. PRICE, ESQ., B.A."

The SIZE *and* DISTRIBUTION *of* AGRICULTURAL HOLDINGS *in* ENGLAND *and* ABROAD.

By MAJOR P. G. CRAIGIE, F.S.S., F.R.G.S., *Secretary of the Central Chamber of Agriculture.*

[Read before the Royal Statistical Society, 15th February, 1887.
LIONEL L. COHEN, Esq., M.P., a Vice-President, in the Chair.]

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PERHAPS I may be allowed to begin this paper by stating that it does not profess to review the entire economical results of English and foreign systems of agriculture. Neither does it pretend to settle the long standing question between large and small farms in this country or elsewhere. All I desire to offer is a simple contribution towards the better understanding of a controversy, in the figures of which I have observed much inaccuracy prevails. The attempt I make to group statistically a few notes of the leading and distinctive facts now available is an attempt only. Very voluminous data, both English and foreign, have been kindly placed at my service, but the many demands on my time prevent my making more than a few of the comparisons that may be instituted between our own practice, as regards the size of farms, in different parts of the United Kingdom, and between our English system and that pursued by some neighbouring States. No one is more fully conscious than I am myself how frequently the official data preclude exact comparison, or how largely differing local conditions may modify apparent conclusions.

I cannot go back to the historical side of the question of what sort of holdings prevailed in England in earlier times, tempting though the retrospect, and many the errors which I believe prevail on this question, as in so many others connected with the use and distribution of land. Neither a rise nor a decline in the smaller class of holdings in England is any new feature in this country. According to Stubbs's "Constitutional History" the alternate expansion and contraction of the yeoman class is an old feature of our rural life. The 300,000 English farms of Gregory King, half of whom were owned by their cultivators, are now represented, if we may accept officially recorded holdings as separate farms, by a number of holdings far in excess of his estimate, now two hundred years old; but the owning farmer, the yeoman of his time, must form a much smaller proportion of the whole. How many of our holdings are worked by their owners we do not know, though if the Government were to adopt a suggestion I lately offered them, this information also would be forthcoming, without difficulty or expense. I think an inquiry on this point would be of no small value just now, and judging from a recent reply to a question in the House of Commons, I hope that my suggestion will be acceded to.

There are two methods by which States usually learn how their surface is held or cultivated, either through the official registers compiled for purposes of taxation, or from direct inquiries made from time to time into the agricultural position. Lists of land owners liable to taxation are often quoted as showing how many land holders there are in some particular country; but even where these are exactly kept, and the ownership of landed kept distinct from that of house property, it is notorious, instead of representing so many proprietors, such lists only show the number of separately taxed plots or areas in any taxing district, and many plots may perchance belong to one man. As moreover everywhere there are non-cultivating owners, and owners who cultivate more than they possess, no cadastral roll of ownerships presents a true picture of the relative size of the units of cultivation which, for want of a better term, I have called agricultural holdings. These are more exactly represented by our neighbours over the channel by the term "exploitations," although too often the distinction between these holdings and proprietorships proper, in countries where proprietor-farming is more common than with ourselves, is unfortunately lost sight of, to the no small confusion of the searcher after facts. Farming by deputy is so familiar in this country, that when the State proceeds to collect its main direct impost, the property and income tax, it is upon the occupier of land as a rule it makes its demand, alike for what it deems due from his profits, and for what it holds his landlord indebted to the Crown, leaving him to recover the tax from his landlord's rent. The inland revenue authorities in their last annual report (1)* furnish us with statistics of the "number of separate properties assessed "under Schedule B," that is in respect of the occupation of land. The gross assessment being in this case absolutely exhaustive, and sweeping into its grasp our whole taxable surface, other perhaps than gardens separately occupied with houses, I hoped I had found here, what we are always anxious to have, a second or corroborative set of figures wherewith to test the validity of the "holdings" returns supplied by our Agricultural Department. But the two records, although in Scotland they appear at first sight approximate, are really, as the following table for the year 1885 will show, in no sense whatever comparable :—

.	England and Wales.	Scotland.	Ireland.	United Kingdom.
Number of "separate properties" assessed under Schedule B of the income tax, including all exempted and abated	798,797	79,265	717,986	1,596,048
Number of "agricultural holdings" in Great Britain and in Ireland according to the returns of the Agricultural Department for Great Britain and the Registrar-General for Ireland............	475,140	80,715	565,313*	1,121,168

* In Ireland a distinction is drawn between separate holdings and separate occupiers. The former are as above; the latter number 521,556. Assuming that the British figures are separate occupiers, this would reduce the total to 1,077,441.

There are of course several ways of accounting for this divergence. The records of the inland revenue enter as separate items properties occupied by the same man that are presumably grouped in the latter statistics. The "Agricultural holdings" of the second line again are exclusive of any separate plots of less than a quarter of an acre in area. But it is most important to note that these holdings refer only to an acreage technically known as "cultivated "area," which in England is 24 per cent., in Wales 40 per cent., and in Scotland 75 per cent. short of the measured surface of these countries. Yet in all these cases, although much absolutely barren mountain and moor exists in the two latter countries, stock is kept, and therefore in one sense farming is carried on, and profit—in at least the inland revenue sense of the term—is reaped from the use of an area which is not embraced by our statistics of holdings at all. I confess I am in some doubt how to account for the curious fact that while the "holdings" are far less numerous than the taxed properties in England, they are slightly more numerous in Scotland, where of all places we should expect to find the proportion the other way.

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* These interlined figures afford a reference to the authorities named in the list at the end of this paper.

The same difficulty which thus makes itself prominent at the outset of an inquiry within the limits of the United Kingdom, will meet us when we try to compare our own statistics with those of foreign countries. There the limitation is usually to cultivated land, or to land under crops or grass, but even those terms do not everywhere have the same significance, and woodlands are in some countries included. So serious indeed is the apparent omission of many hill pastures and sheep walks, which form a material factor in the productive capacity of Scotch farms, and so misleading is any calculation of the head of stock nominally but not really kept upon the $4\frac{3}{4}$ million acres of cultivated land there accounted for, that I have purposely limited most of my comparisons to the case of England alone. This feature of the Scotch, and in a less degree the Welsh, returns of holdings also bars their use in such questions as those relating to crofters now frequently under discussion. Large as is the agriculturally valueless portion of North Britain, it is unfortunate that our system of agricultural statistics is far less exhaustive than that employed thirty years ago by the Highland and Agricultural Society of Scotland (2), when 6,531,000 acres of sheep walk were recorded and included. Had these been as fully taken account of, we should have learned how something like 60 per cent. in place of 25 per cent. only of the surface of Scotland was employed.

For some years a statement of the number of agricultural holdings in this country, or to speak more correctly, of the separate returns made annually by occupiers of land, appeared in the report which accompanied the tables of the yearly agricultural statistics. Up to the year 1875 these figures were separately given for England, Wales, Scotland, and Great Britain. After the year 1876 the number of returns was not separately stated, except when a special inquiry was made. I would suggest the advantage of recording, as before, annually, the returns from each division of the United Kingdom. If it be urged that the "returns" were inexact, representing "holdings" rather than "holders," that may be a reason for securing further accuracy; it is not one for withholding information which ought to be forthcoming, and is rendered in the case of Ireland.

Inquiry as to Holdings in 1885.

The statistics available for 1885, in the return issued last autumn, present a far more complete classification of holdings than has ever before been presented by the British Government in a single report. In examining its totals it is apparent that the total number of holdings for Great Britain has in the main shown but little change over the whole period since 1871. For Ireland the number of holdings, or rather, as the distinction is there made, of separate and individual occupiers, has on the other hand distinctly diminished.

The new returns (³), in deference to a suggestion I offered more than a year ago, include not only the classification of holdings in one group under fifty acres, and in several groups over that figure, but begin from the quarter acre which is the starting point of our statistics, and offer a complete series: the only difficulty in its interpretation being the uncertainty of what is an agricultural holding in the smaller plots.*

The following general table gives the numbers of agricultural holdings now available, if we add the Irish figures (⁴) to those for Great Britain:—

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* Some foreign Governments begin their classification of holdings at even a lower point than our own, others start higher, the United States from a much larger limit. But the inherent difficulty in deciding when a plot of land acquires a sufficiently distinct agricultural character to be called in any sense a farm, has led to attempts to impose some definition upon the word. Thus in carrying out the census of 1880, the Washington authorities thus instruct their enumerators in a minute which says: If every bit of land owned by any one were enumerated, however small, and whether cultivated or not, the figures would lose all significance whatsoever. In reaching out to cover the potato patch, tilled at odd hours by the factory hand, or the vegetable garden of the village shopkeeper, lawyer, or blacksmith, the census would lose far more than it gained. The necessity for an official delimitation of this term being accepted, the definition adopted at the census of 1870 was as follows: "Farms for the purposes of the agricultural schedule, "include all considerable nurseries, orchards, and market gardens which are "owned by separate parties, which are cultivated for pecuniary profit, and employ "as much as the labour of one able-bodied workman during the year. Mere "cabbage and potato patches, family vegetable gardens, and ornamental lawns, not "constituting a portion of a farm for general agricultural purposes, will be excluded. "No farm will be reported of less than three acres, *unless* five hundred dollars' "worth of produce has actually been sold off from it during the year. The latter "proviso will allow the inclusion of many market gardens in the neighbourhood of "large cities, where, although the area is small, a high state of cultivation is "maintained, and considerable values are produced. A farm is what is owned or "leased by one man and cultivated under his care. A distant wood-lot or sheep-"pasture, even if in another sub-division, is to be treated as part of the farm, but "wherever there is a resident overseer or a manager, there a farm is to be "reported."

Classification of Holdings.	England.	Wales.	Scotland.	Great Britain.	Ireland.	United Kingdom.
	No.	No.	No.	No.	No.	No.
Of ¼ acre but under 1....	21,069	1,083	1,360	23,512	49,744	73,256
,, 1 not exceeding 5....	103,229	11,044	21,463	135,736	61,876	197,612
Above 5 ,, 20....	109,285	17,389	22,132	148,806	365,113	598,068
,, 20 ,, 50....	61,146	12,326	10,677	84,149		
,, 50 ,, 100....	44,893	10,044	9,778	64,715	56,172	120,887
,, 100 ,, 300....	59,180	7,844	12,549	79,573	30,860	124,308
,, 300 ,, 500....	11,452	389	2,034	13,875		
,, 500 ,, 1,000....	4,131	63	632	4,826	1,548	7,037
,, 1,000 acres................	565	8	90	663		
Total	414,950	60,190	80,715	555,855	565,313	1,121,168

Percentage of Holdings in each Class.

	England.	Wales.	Scotland.	Great Britain.	Ireland.	United Kingdom.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Of ¼ acre but under 1....	5·08	1·80	1·69	4·23	8·79	6·53
,, 1 not exceeding 5....	24·88	18·35	26·59	24·42	10·94	17·61
Above 5 ,, 20....	26·34	28·89	27·42	26·77	64·55	53·43
,, 20 ,, 50....	14·74	20·48	13·23	15·14		
,, 50 ,, 100....	10·82	16·69	12·11	11·64	9·94	10·78
,, 100 ,, 300....	14·26	13·03	15·55	14·31	5·45	11·09
,, 300 ,, 500....	2·76	0·65	2·52	2·50		
,, 500 ,, 1,000....	0·99	0·10	0·78	0·87	0·27	0·63
,, 1,000 acres................	0·13	0·01	0·11	0·12		

As Irish figures are not analysed in exactly the same classes, I bracket together all holdings from 5 acres to 50 and again from 100 to 500 in the two last columns. It is a little astonishing at first sight that holdings under 5 acres are rarer in Ireland than in England proper, 20 per cent. as against 30 per cent. This is caused by the relative paucity of the 1 to 5-acre class across St. George's Channel, which more than counteracts the fact that nearly 9 per cent. of the Irish holdings, but only 5 per cent. of the English, are below 1 acre.

At the outset of this inquiry, we however see that in this United Kingdom—a country of large farmers as we are often told it is—a fourth of our "farmers" are petty occupiers of no more than 5 acres of land, and those who farm less than 50 acres constitute nearly four-fifths of the entire body.

In England alone the 5-acre men and those below them make up 30 per cent., and the class below 50 acres 71 per cent. of the whole, while barely one holding in every hundred exceeds the dimensions of a 500-acre farm.

Geographical Distribution of Holdings.

I have grouped the figures for England as a whole geographically, in the form which I suggested in 1883 (^{5}) to this Society as convenient for agricultural statistics, and the details thus presented in each county for all holdings and for each class I place in the Appendix, Table I. This grouping of counties has been since 1883 adopted by Her Majesty's Government and used by the Department in their produce statistics, though it has not yet been extended to those of the area of crops or of holdings. The four distinctive provinces of England, to which country I shall limit the detailed scrutiny of the returns, can be traced on the accompanying map by reference to the counties named in the tables in the Appendix. Each province or division contains a not very dissimilar number of cultivated acres, but, as I showed in the paper to which I refer, there is a distinct difference in the agricultural distribution of the surface. It is not surprising therefore that the size of an average agricultural holding varies with mode of culture on the two sides of the country.

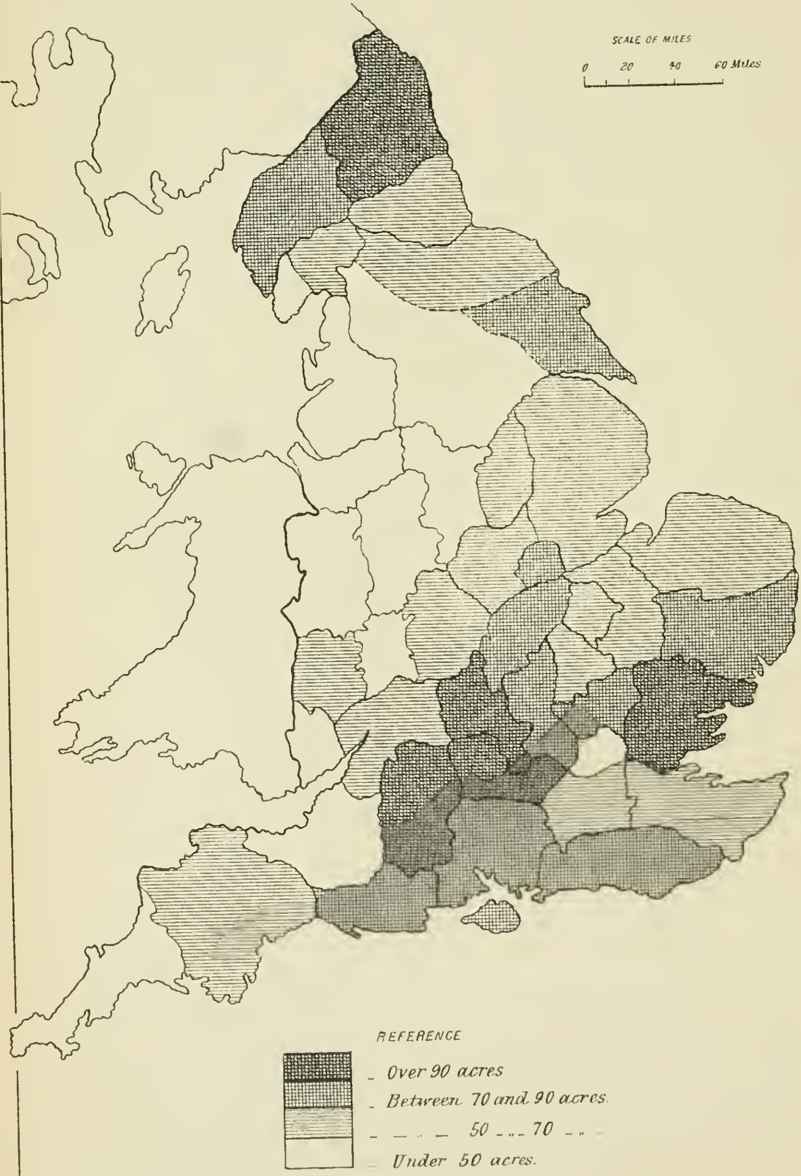
England in Divisions.

Counties.	Holdings of all Classes.		Average Size of each Holding.
	Number.	Acreage.	
I. Eastern and North-Eastern	88,813	6,182,795	69·6
II. South-Eastern and East Midland	83,470	5,838,315	69·9
III. West Midland and S.-Western	108,987	6,362,952	58·4
IV. Northern and North-Western	133,680	6,507,477	48·7
England	414,950	24,891,539	60·0
Wales	60,190	2,818,547	46·8
Scotland	80,715	4,848,166	60·1
Great Britain	555,855	32,558,252	58·7

In the eastern and north-eastern counties an acreage of 6,183,000 would appear to be held by nearly 89,000 farmers, or at least occupiers of land, the average size of the holding being thus 69½ acres. In the east-midland and south-eastern counties an acreage which just falls short of 6 millions is cultivated by 83,000 occupiers, whose average holding is much the same, or 70 acres. Turning westward, however, in the more grassy districts of the west-midland and south-western counties, the occupiers of land are more numerous, and the average holding is not quite 58½ acres, while in the northern and north-western counties 134,000 farmers, great and small, are accounted for as working 6,500,000 acres, with an average holding of 48¾ acres. The mean for all England is 60 acres, that for Scotland is much the same, while in Wales the proportion of small holders increases, and the general average falls to below 47 acres per holding.

ENGLAND

COUNTIES ACCORDING TO AVERAGE SIZE OF HOLDINGS.



Harrison & Sons, Lith. St Martins Lane.W.C.

Comparative Size of Holdings.

Regarding the counties in detail, considerable difference in the average size of holdings is apparent. These county averages are necessarily in themselves, however, somewhat misleading. We may have, and do indeed have, in counties like Lincolnshire, one portion of the county surface minutely subdivided and another occupied in farms of large extent. Until we are able, as I hope we shall be able, to carry our agricultural statistics a little further, and obtain particulars for unions at least, if not for parishes, it will be impossible to construct such a map of England as I should wish to present, exhibiting to the eye at a glance where the small holdings prevail and where larger tenancies are the rule.

Essex stands at the head of the eastern counties so far as mean area of holdings is concerned, while Lincoln, as we might naturally expect, is at the other end of the scale. An Essex holding averages 92 acres, a Lincolnshire holding does not average 57; 42 per cent of the holdings in Essex exceed 50 acres, while in Lincolnshire not quite 24 per cent. do this. Holdings under 5 acres occupy little more than 1 per cent. of the total number of holdings in the eastern district, but the proportion varies greatly in different counties, and it is remarkable that in Norfolk no less than 14·7 per cent. of the holdings are actually under 1 acre. Whether these are really agricultural is a question on which better information would be welcome. In Lincolnshire, on the contrary, where small holdings have in certain districts their home, the proportion is only 4½ per cent. In the East Riding of Yorkshire it is nearly 8 per cent.; but in Essex, notwithstanding the probability that many small and scarcely agricultural holdings around the metropolis are included, only 3 per cent. are under 1 acre.

The average size of an English agricultural holding in 1875 was differently calculated in different parts of the official statistics for that year. It was given in one table of the returns as 57 acres. As however the separate "holdings" in the special inquiry of that year were less than the returns actually accounted for, no doubt owing to the double tenures of certain occupiers, the mean size in the special return is increased to 58½ acres. According to the more recent returns which have appeared for 1885, the average holding now is 3 acres greater than the lower, and 1½ acres greater than the higher of these estimates, or 60 acres. The tendency therefore has been one of increase. In certain counties this increase is very much more marked than in others. Norfolk is perhaps, of the larger agricultural counties, the one of which the holdings show the largest growth, or from an average of 56 acres to 66½; but the small county of Rutland exhibits the same tendency. The holdings there have risen from an average of 63 to an average of 74⅓ acres, and if one may rely upon the earlier returns of 1872, in thirteen years the average size of a holding in the county of Rutland has increased from 55 acres to 74⅓, a course which points to a consolidation of holdings when agriculture was prosperous, and in later years to the concentration of unlet farms in their owners' hands. But I cannot omit to note that the continually extending area accounted for at different dates as "cultivated" is the most probable explanation of the growth of average area. The number of separate holdings in England has in fact increased from 412,000 in 1875 to 415,000 in 1885.

In the county of Bucks, where the holdings averaged 70 acres in 1875, they now average 77 acres. In Wiltshire, where ten years ago the holdings were the largest of any part of England, Northumberland only excepted, there has been a further increase, and an average of 95 acres has become one of 100¼. On the other hand, in Northumberland itself, the average was 122 acres ten years ago, and it is now 119¾. Shropshire is another instance of exception to the current rise in the size of holdings. The average in 1875 was 60 acres, it is now 57⅓. In Monmouth there is a small decrease from an average of 48 acres to one of 46½. In those counties, however, which stand at the bottom of the scale as regards the size of holdings, the tendency seems, as over the greater part of England, upwards rather than downwards.

I pointed out on a former occasion (1879), that if we excepted the counties of Middlesex and Cornwall, the counties which have the smallest sized holdings lie together in a group. They are Lancaster, Chester, Derby, Stafford, and the West Riding of Yorkshire. The largest sized average of holdings is met with in Northumberland, where doubtless considerable sheep farms are included within the nominally cultivated area. The next highest average holdings are those of Wiltshire already alluded to, Berkshire, Oxfordshire, and Essex.

The extent of surface covered by the several groups of holdings is however a feature which we must not overlook. For England the share of the cultivated land in each class may be thus shown:—

Holdings.	Acres.	Percentage of Area.
¼ of an acre and under 1 acre	9,988	0·04
1 acre to 5 acres	286,526	1·15
5 acres to 20 "	1,219,663	4·89
20 " 50 "	2,012,370	8·60
50 " 100 "	3,285,350	13·19
100 " 300 "	10,285,988	41·32
300 " 500 "	4,328,722	17·39
500 " 1,000 "	2,697,794	10·83
Above 1,000 acres	735,138	2·95
	24,891,539	—

It will be noted from this table the greatest part of the surface is occupied by the medium sized holdings of England. The area cut up into small holdings under 50 acres, and the area devoted to farms of 500 acres and upwards, are curiously enough nearly equal, and roughly the surface of England may be thus mapped out:—

In 294,729 small holdings under 50 acres, there are 3,559,000 acres.

In 115,525 medium holdings between 50 and 500 acres, there are no less than 17,899,000 acres.

In 4,696 large holdings over 500 acres, there are 3,434,000 acres.

The smaller or "20 acres and under" holdings in the first of these divisions would themselves suffice to occupy a county nearly of the size of Devon, and roughly speaking, we may best realise the proportion of our small farms to the whole, by imagining on the map of England that the three south-western counties of Cornwall, Devon, and Somerset had their entire superficies represented by the small "under 50-acre" holdings.

In any examination of the distribution of small farms in England, it is essential to note the distinction between the type of farm, which is really a market or fruit garden, and that which supplies general agricultural produce. It is needful too to notice the very concurrent testimony of experts as to the condition of the 5 to 10-acre farmer, and the average holder of between 50 and 60 acres of land. As well put in Mr. T. E. Kebbel's interesting and thoughtful treatise on the agricultural labourer in 1870,(6) the first of these classes of farms may be regarded as the reward of the best class of peasants, the last as the refuge of the worst class of farmers.

Agricultural Population and Agricultural Holdings.

Distinguishing the counties in the order of their agricultural population I find that, according to the census classification,(7) in which however it must not be supposed the term "agricultural "population" is the same as that of "rural population," or at all the same as the "agricultural population" of some continental States, the smallest proportion of persons engaged in agricultural work to each 1,000 of the population is met with in Lancaster and Durham, where the ratio is under 2 per cent., and the largest in Huntingdon, Rutland, Cambridge, Herefordshire, Lincolnshire, and Suffolk. The following tables will show what is the average size of holdings in these two different classes of counties. Although considerable variety will be seen to prevail, it is yet a fact worth noting that, on the whole, the average dimensions of the holdings are smallest where the agricultural population forms the smallest and least important part of the community, a conclusion which points unmistakably to the conditions under which alone small farming can compete in this country on equal terms with large holdings: closeness to markets, and a ready sale for garden and special products, and what is also to be largely predicated of such areas, the possession of some other trade than that of a farmer by the smaller occupier.

Although I am well aware how defective is the distinction between rural and urban population founded on the mere fact of residence within one or other of our two sorts of sanitary areas, yet speaking broadly, at the two ends of the scale we shall find examples of essentially different districts. Now there are eighteen counties which have 60 per cent. of their whole inhabitants resident outside the boundaries of urban sanitary authorities, and so far therefore may be regarded as rural. They are shown in the table below, both in the order of their nominally rural population, and with the percentage of their entire inhabitants reckoned by the census to be actually "engaged" in agricultural work. It will be seen that those rural counties have not always a proportion of agricultural workers corresponding to their place in the list. The object of this table will be served however if it enables us to contrast this group with the opposite one of distinctly urban counties, and to see whether any relation can be traced between the general character of the population and the mean size of holdings, or the percentage which the smaller classes of holdings form of the whole number, or last of all as to the prevalence of allotments to which so much attention has been lately drawn.

Counties where 60 per Cent. of Population is Rural.	Percentage of Population Outside of Urban Sanitary Districts.	Percentage of Whole Population actually Engaged in Agriculture.	Average Size of Holdings.	Percentage of Holdings which are under		Allotments of all Sorts, per 1,000 Acres Cultivated.
				20 Acres.	5 Acres.	
			Acres.			
Rutland	100	15·8	74	47·3	21·0	31
Bucks	79	11·3	77	52·2	32·0	45
Hereford	73	14·9	62	57·8	33·5	24
Herts	71	10·8	80	55·7	34·7	34
Westmorland ..	70	11·7	68	36·4	15·0	4
Bedford	69	11·9	65	61·8	36·4	70
Cornwall	69	10·7	41	57·6	28·3	18
Shropshire	68	11·1	57	62·3	34·2	23
Wilts	66	13·1	100	56·9	34·4	48
Huntingdon	66	16·9	66	61·8	36·8	34
Suffolk	65	14·2	84	47·5	29·8	38
Dorset	64	12·0	87	57·1	34·1	39
Berkshire	64	11·1	93	53·4	30·4	41
Oxfordshire	62	12·4	91	50·9	30·2	44
Norfolk	61	13·3	67	61·9	41·1	26
Somerset	61	9·0	48	61·6	39·1	34
Northampton ..	60	9·2	81	49·9	26·2	50
Lincoln	60	14·3	58	62·4	32·2	22

Rutland, where the whole population is, in the sense of the census table, technically "rural," has thus not quite sixteen agricultural workers to each 100 of its inhabitants; while Huntingdon, where the "rural" section forms but two-thirds of the population, has nearly seventeen such workers. In both the average size of the holdings is above the mean for England (60 acres), but in the smaller county it is 74 acres, in the larger 66. Both appear about equally well supplied with allotments, Huntingdon boasting 34 and Rutland 31 of such plots to every 1,000 cultivated acres. But Huntingdon has a much larger share of what are usually called small holdings, those under 20 acres numbering in her case 62 per cent. of the whole as against 47 per cent. in Rutland. Again, if we attach the term small holdings only to plots of 5 acres and less, Huntingdon has nearly 37 per cent. of these, while Rutland has but 21 per cent. The very striking difference in the past rate of decrease of the agricultural population in the two counties of Rutland and Huntingdon must surprise many advocates of the smaller order of holdings. They would expect the greatest denudation of farm labourers in the county where the supply is least of those small holdings which are recommended as effective in retaining on the land a population that under other circumstances would have drifted into the towns. As a matter of fact the very opposite of all this has occurred. The county with fewest small holdings has retained most labourers, for while the workers on the farms of Huntingdon were 20 per cent. fewer in 1881 than in 1871, those of Rutland diminished by less than 1 per cent.(8) Now both of these counties have been heavy sufferers by the recent low prices of cereals, and both have laid down a good many acres to grass. Stopping at the year 1881, for which alone we can learn the decline of the agricultural population, the percentages of increase of permanent pasture were in Huntingdon 9 per cent. and in Rutland 12. So that this factor also fails to account for the phenomenon. I might multiply such cases, but the figures which I offer deserve attentive study before we make too sure of the causes of agricultural depopulation, or too confidently recommend smaller holdings as a means of arresting it.

Selecting now a distinctly urban group of counties, in which the population are so largely occupied otherwise than in agriculture that two-thirds of the whole are resident in towns great or small, I will endeavour to see what differences, if any, are apparent in the class of agricultural holdings there prevailing. These urban counties, omitting of course London, are:—

Counties where 66 per Cent. of the Population is "Urban."	Percentage of Population Outside of Urban Sanitary Districts.	Percentage of Whole Population actually Engaged in Agriculture.	Average Size of Holdings.	Percentage of Holdings under		Allotments per 1,000 Acres Cultivated.
				20 Acres.	5 Acres.	
			Acres.			
Lancashire	10	1·8	37	50·7	18·4	12
W. Riding of York	17	2·8	39	62·3	27·0	16
Middlesex (ex-Metropolis)	18	3·0	41	63·4	32·2	21
Staffordshire	23	2·8	43	62·5	33·3	25
Warwickshire	24	3·7	65	53·5	27·5	48
Cheshire	32	5·0	38	61·2	32·5	20

These figures, when read by the side of the previous table, make the smaller average size of the holdings of the urban counties at once apparent, and they show also on the whole a smaller provision of allotments. It would appear to be a relative scarcity in the number of large farms which reduces the average, for it will be observed that the percentage of holdings under 5 or under 20 acres is not very dissimilar to that which held good in many rural counties.

I had intended to make comparison between the numbers of the so called agricultural population and the existing holdings, that some deductions might be drawn as to the relation which large or small farms hold to the population they support, but on reflection I hesitate to press any deductions from the classification we have. Even if, as is sometimes doubted (the point was questioned in the census of 1871 itself), the figures as regards agricultural labourers fairly represent the facts, there must be large omissions in the ranks of land occupiers in our census occupation columns which very much impede their use for comparison with the average population of other counties. Many more occupiers of land are accounted for in the returns of the Agricultural Department than so called farmers or graziers in the census volumes, assuming as I am assured that the holdings of 1885 may be taken to represent individual occupiers. The discrepancy doubtless arises from the large number of cases in which land especially in small holdings is occupied as a subsidiary matter to some other business in which the tenant is engaged.

If it may be permitted to assume that the census enumeration of farmers, male and female, is at all exhaustive of the entire numbers who rely on land exclusively or mainly for a living, a comparison county by county will show how much the occupation of plots by persons who are not farmers prevails in England. The census of 1881 classes only 224,000 persons as "farmers," while the agricultural returns find 415,000 "occupiers of land."

Local Examples of Land Sub-division.

I have been able to procure from local sources a somewhat complete analysis of several English parishes with the numbers interested in the occupation or ownership of the soil, showing how largely the agricultural merges into other classes in the community. One of the best of these examples is supplied by Mr. W. C. Little, of Cambridgeshire,(9) late an assistant commissioner to the Royal Commission on Agriculture. He quotes a parish in the Isle of Ely, containing some 11,000 acres and 1,800 inhabitants in 380 to 400 houses. Defining "a holding as the total quantity of land held "under one owner," and "an occupation as the quantity of land "occupied by one cultivator," perhaps under different owners, Mr. Little's figures can be thus grouped :—

Acres.	Number of Holdings.	Occupied by Owners.	Number of Owners.	Average Size of Property.	Separate Occupations.	Average Area of Occupation	Occupations per Cent.
				Acres.			
¼ and under 1	124	28	50	0·5	115	0·4	47·3
1 to 5	51	15	41	2·5	35	2·8	14·4
5 ,, 10	43	8	23	8·0	22	6·9	9·0
10 ,, 20	21	3	13	18·0	16	14·7	6·6
20 ,, 50	23	5	13	25·0	15	33·5	6·2
50 ,, 100	14	3	15	94·8	12	74·0	4·9
100 ,, 300	15	3	15	167·2	14	178·5	5·8
300 ,, 500	10	3	6	387·6	9	355·2	3·7
500 ,, 1,000	3	—	2	797·0	5	678·4	2·1
1,000 and over....	—	—	1	2,263·3	—	—	—
	304	68	179	Average 67·4	243	Average 45·3	100·0

There is proof here, and it might have been carried further had plots below ¼ acre been included, that the *petite culture* is actually existent now, and even the peasant proprietor himself is no such "rare bird" as is sometimes fancied. The very varied classes of the 179 landowners above referred to are well illustrated by the further analysis of their social position as follows :—

Number.	Description.
65	Farmers and gardeners.
41	In trade and commerce.
32	Labourers.
17	Corporations, charities, glebes, &c.
13	Professional men.
11	Gentry.
179	

By the kindness of Mr. Ramsden I am able also to give the following particulars as to the mode in which the land is held in a typical Warwickshire parish—Temple Bolsall. The area is 4,815 acres, the gross rental, including houses and land, 10,400*l.*, and the population 1,151 persons. An analysis shows there were:—

Holdings.	Extent.	Number.	Owners chiefly Farming their own Land.
	Acres.		
Under 1 acre	20	131*	5
1 acre and under 5	123	41	8
5 " 20	628	53	11
20 " 50	667	21	1
50 " 100	576	9	2
100 " 200	1,631	12	2
Above 200	1,166	4	1
	4,811	271	30
Besides in allotments	4	—	—
	4,815	—	—

Note.—Land for potatoes is also given on several farms.

* Many of these are cottages, only twenty of which have less than 20 poles attached to them. Some of them are shops; others have 15, 18, or 19 poles let with them.

There are 107 landowners in all, of whom 6 are "charities," one a local charity occupying 75 acres, and owning 1,146 and manorial rights. The other owners above 200 acres are four in number. Their estates range from 209 to 438 acres, some occupying their own land, and only one non-resident. Altogether of resident owners there are 10 over 20 acres, and 28 under that figure, and the non-resident number 22 over 20 acres, and 40 under. Fifteen of the resident owners farm land they hire in addition to their own, some live on the hired land and let their own. It cannot be said that there is a dull uniformity of system in this type of an English community.

It would be easy to multiply such instances as pictures of a state of subdivision of the soil to which we are no strangers even in England. Mr. Druce's reports to the Royal Commission on Agriculture, on the position of the small farms of the Isle of Axholme,(10) deserves special attention for the care of his analysis. In the two parishes from which I take the details subjoined, he shows what was the subdivision of the soil between those who were farming small holdings either as owners or as tenants respectively, the proportions of the two classes standing thus:—

Lincolnshire Holdings (Isle of Axholme) of Twenty Acres and under.

Holdings.	Epworth.			Owston.		
	Owner Farmers.	Tenant Farmers.	Total.	Owner Farmers.	Tenant Farmers.	Total.
Under 1 acre	45	40	85	44	82	126
1— 5	67	62	129	34	20	54
5—20	33	51	84	34	20	54
	145	153	298	112	122	234

Note.—Epworth 5,500 acres; under 20 acres 3,400; average holding 11 acres.
Owston 5,000 acres; 2,500 population.

The state of matters here indicated resembles what we find in France and in Flanders. But it is a mistake to suppose that it is only in one corner of Lincolnshire that these small farms abound. In the fen districts of the south-east these peasant proprietorships prevail, and before we attempt on a large scale artificial means of introducing this class on soils and in districts where the local circumstances have not naturally produced them, it would be worth while were their condition attentively studied on the spot. The following parishes from the east of the same county show relatively more small owners than those of the Isle of Axholme, which are more usually quoted on this subject.

Holdings.	Leake.			Wrangle.		
	Owner Farmers.	Tenant Farmers.	Total.	Owner Farmers.	Tenant Farmers.	Total.
Under 1 acre	26	10	36	23	9	32
1— 5	60	23	83	35	18	53
5—20	70	39	109	45	26	71
	156	72	228	103	53	156

Note.—Leake 5,800 acres; 2,000 population.
Wrangle 6,700 acres; 1,200 population.

Holdings.	Friskney.			Hogsthorpe.		
	Owner Farmers.	Tenant Farmers.	Total.	Owner Farmers.	Tenant Farmers.	Total.
Under 1 acre	16	35	51	16	25	41
1— 5	33	25	58	15	13	28
5—20	45	28	73	22	17	39
	94	88	182	53	55	108

Note.—Friskney 6,500 acres; 1,600 population.
Hogsthorpe 2,900 acres; 878 population.

The presence of these small holdings along side of large occupations, gives interest to some calculations that Mr. Druce made for this county, using figures given in the 1871 census, as to the relative labour involved in working the various classes of Lincolnshire farms. The proportions are of course affected by the extent of grass or arable land on particular holdings; but on the whole it appeared that one man, either the farmer or a hired labourer, was employed for every—

2½	acres in case of holdings	under	5			acres in size.
7½	„	from	5	to	10	acres in size.
14¾	„	„	10	„	20	„
40½	„	„	300	„	350	„
57½	„	„	500	„	600	„
41¾	„	„	1,000	„	1,200	„

There will of course be more than one conclusion drawn from such a table as the foregoing, according as we wish to apply to land the general rule to raise all the produce possible, at the least cost of labour, and not to expend human work on what implements or animals could do more economically, or according as we regard it as the highest good to make the land carry as many men as practicable.

Mr. Druce's general conclusion as to whether the small men did or did not stand the bad times better than their bigger neighbours is thus summed up in his report: "It seemed to me they had "felt them more, they had not indeed lost so much money "(proportionately I mean), because they had proportionately less "to lose, but they felt the pinch more; they had nothing to fall "back upon, nor was their credit good enough to enable them to "borrow money to tide over their difficulties. Living as most "of them appeared to do from hand to mouth, and depending "solely on the crops of the current year to pay that year's "expenses, when their crops failed as they did in 1879 and 1880, "they were unable to meet their expenses, and so were placed in a "very serious plight, and had to trust to the forbearance of their "creditors, mortgagees, and others to keep on their holdings. "The large farmers, on the other hand, though their losses had "without doubt been very heavy, were not placed in so serious a "plight; their credit was not gone, they had not exhausted it in "the purchase of their farms, as the small freeholders had, and "they had their stock to fall back upon when their crops had "failed. Then too their losses had been in many cases partially "shared by their landlords, who, as a rule, had made remissions of "rent, but the mortgagees of the small freeholders had made no "remissions."

Live Stock on different classes of Holdings.

The new returns(⁴) provide us with a means of contrasting the head of live stock maintained on our several classes of holdings, but the county averages per 100 acres of cultivated land are not now, as they used to be, officially given. If the calculation be again made, the general result is similar to that shown on former inquiries. Sheep are scarce, and cattle, presumably cows, more frequent on the small holdings, which are often held by jobbers in live stock. The returns of holdings do not show the number of cows as distinct from horned stock generally. Comparing the cattle of counties with the data given fifteen years ago, so as to see where any exceptional changes may have occurred, I give in Table IV the numbers on each 100 acres. The increase of cattle is general since 1872, and appears nearly in every county. It is not more marked in small farm than in large farm counties. Among those in the east it is to be noted however that Suffolk shows no growth at all in numbers, and has now the distinction, if such it be, of having fewer cattle on its cultivated acreage than any other English county, or less than 9 upon 100 acres. Of course one must remember the month of these returns, June, and could we have taken the cattle census in December (which I wish we could once in a way to furnish some data on this point), a very different result would appear in counties where the winter feeding of horned stock prevails. Essex and Herts, which stood below Suffolk in 1872, have both increased their stocks. In the second division of counties I find no instance like that of Suffolk where the cattle remain stationary over the fifteen years. In Leicester, which now ranks with Cheshire and Derbyshire as carrying most cattle per 100 acres, the increase is considerable, or from 26·9 to 31·5 head. A curious feature is the actual decline of the cattle population of Lancashire between 1872 and 1885. Regarded in respect of the size of holdings, it will surprise no one that the number of cattle is generally the greatest in the counties with the smallest holdings; and, taking England as a whole, the existing head of stock on all dimensions of holdings may be read in the table subjoined. I have worked out also in the Appendix, Table V, like figures for two counties, the West Riding of Yorkshire and Essex: the one a county where the holdings average 39 acres, the other a county where they are 91. Their distinctive differences will repay an attentive study of the figures. The general results for England appear in the following table:—

Live Stock in England on Holdings in Classes, 1885.

Class of Holdings.	Number of Horses per 100 Acres.	Number of Cows and other Cattle per 100 Acres.	Number of Sheep and Lambs per 100 Acres.	Number of Pigs per 100 Acres.
1 to 5 acres	7·4	29·9	29·9	49·8
Over 5 to 20 acres	5·6	31·4	31·6	22·1
" 20 " 50 "	5·3	27·1	44·3	12·5
" 50 " 100 "	4·9	23·1	50·9	9·1
" 100 " 300 "	4·3	18·5	62·9	6·7
" 300 " 500 "	3·8	14·7	84·8	5·1
" 500 " 1,000 "	3·3	11·2	103·2	4·2
1,000 and over	2·6	8·2	107·8	2·9

The following further table is of interest, as it shows how greatly the proportion of the cattle varies in the grazing and corn districts of England, while there is comparatively little variation in the horses and sheep in each division:—

Counties.	Horses per 100 Acres Cultivated Area.	Cattle per 100 Acres Cultivated Area.	Sheep per 100 Acres Cultivated Area.
I. Eastern and North-Eastern	5·0	12·2	61·5
II. South-Eastern and East Midland	4·1	17·7	74·9
III. West Midland and South-Western	4·3	21·6	71·7
IV. Northern and North-Western	4·0	23·8	62·6
England	4·4	18·9	67·6

Allotments and their Distribution.

The question of allotments is wholly distinct from that of holdings proper, great or small, but the question of giving facilities for extending a system long familiar in rural England, has lately attracted attention to the subject.

The recent special return obtained of garden or field allotments in 1886(11) is a revival of the inquiry made in 1873, which more than a year ago I urged the Government to repeat. Although far more complete than its predecessor, it is yet confessedly by no means exhaustive, and there is good reason to believe that it understates the supply already existing. I had hoped to include in this paper some notice of the supplementary returns now almost daily expected, showing the particulars as to allotments not only for counties, but for unions, and in Scotland for parishes—a precedent we may hope ere long to be extended to some other statistics. The comparisons which may then be instituted, not with areas only, but with population, pauperism, and other matters are self-evident. I must however deal separately with the returns issued last autumn, in the form they were presented to Parliament. They are not for the same year as those of holdings, and to some extent they overlap the lower class of holdings. I offer therefore now a condensation of the new information arranged in groups of counties in the Table VI in the appendix.

The total of 795,532 allotments, garden plots, or cow runs, omits the special railway allotments, which are given separately in the buff-book. These make up a further number in Great Britain of 39,425 detached, and 6,162 attached to cottages, and would thus have brought the aggregate entries to 841,099. But it ought to be acknowledged that we are not in possession by any means of complete statements as to the number of cow runs or potato plots, and on the other hand, that some of these may possibly be held by other classes of allotment holders. I have placed first the class of field or detached allotments, which are more usually the objects of discussion at present. While admitting the considerations of economy and time, which doubtless ruled the matter, one cannot but regret that the perhaps inevitable limitation of the very numerous gardens attached to cottages to those "of and exceeding "one-eighth of an acre," has doubtless resulted in an inadequate presentation of the garden plots of our English villages. Bearing these qualifications in mind, the geographical grouping of the allotments accounted for is thus shown:—

Allotments, other than Railway Allotments, in Divisions.

Counties.	Detached from Cottages.	Attached to Cottages of ⅛th acre and upwards.	Potato Plots.	Cow Runs.		Total.
				General Run.	Definite Area.	
I. Eastern and North-Eastern	98,668	63,590	19,144	1,099	545	183,046
II. South-Eastern and East Midland....	138,647	55,868	18,569	348	565	215,997
III. West Midland and South-Western	88,548	71,681	30,660	519	810	192,218
IV. Northern and North-Western	55,186	39,177	11,672	2,169	1,359	109,563
England	381,049	230,316	80,045	4,135	3,279	698,824
Wales	8,018	27,152	13,263	838	1,214	50,485
Scotland	5,450	15,099	17,838	7,620	216	46,223
Great Britain........	394,517	272,567	111,146	12,593	4,709	795,532

If these numbers may thus be taken collectively, it will be seen that the demand for more allotments is not limited as some suppose to plots for regular agricultural labourers, for whom, if they alone were in question, an ample supply is apparent, even on the face of these confessedly imperfect statistics. The male "agricultural labourers, farm servants, and cottagers" in Great Britain, including even boys down to a tender age, are not 900,000 all told, and there are classes of farm servants included in this category who could not well be allotment tillers. At the present moment, when so much has been done, as has been shown by Lord Onslow and others, in country districts by voluntary action, the demand is quite as much an urban, or at least suburban question, as it is a rural one. Indeed, workmen in many trades are now, as the stockingers in Leicestershire, very largely allotment holders. There is nothing new in the allotment system, which is of old growth in England, unless we note the apparent drift of the present movement towards a system of allotments to be held rather under public bodies than under private landlords. This has not as a rule been heretofore the most successful plan of managing these plots.

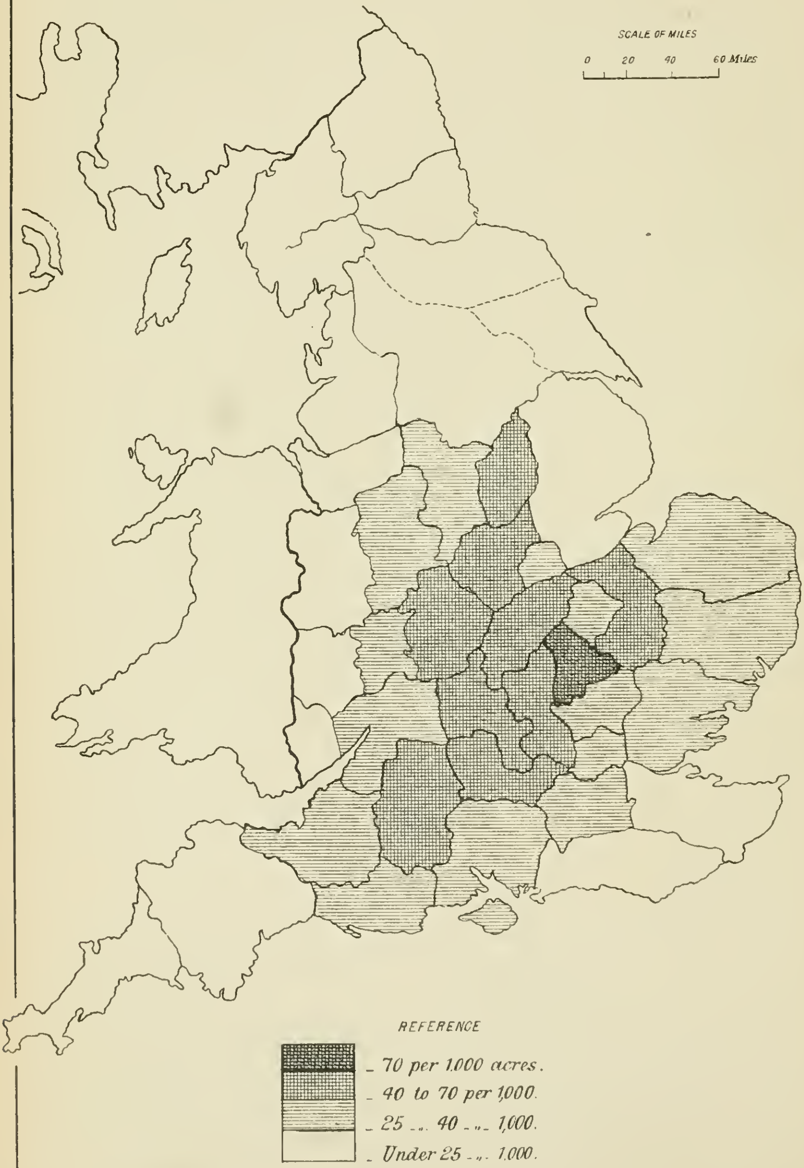
There are curious varieties in the local distribution of allotments, which only a knowledge of local peculiarities and farming practices can explain. The counties of the east-midland division show the largest proportion of these plots, 36·7 per 1,000 acres of cultivated land; and the northern and north-western districts the lowest, or only 17 per 1,000 acres. In individual counties the proportion varies from 4 allotments per 1,000 acres in Westmorland, to 70 in Bedford.

An examination of the county tables cannot fail also to call attention to the peculiarity that the counties where allotments are least numerous are, as a rule, those where the highest agricultural wages prevail. There are ten counties of England where, in the returns, less than 20 allotments are reported per 1,000 acres cultivated, and ten, on the other hand, where more than 40 per 1,000 acres are to be found. If we employ as a guide to the rate of agricultural wages the mean of the statement prepared by Mr. Druce, one of the assistant commissioners, from the evidence tendered in 1881 to the Royal Commission on Agriculture, and submitted by him last year to the Royal Commission on Trade Depression,(12) the results are these:—

Counties.	Allotments per 1,000 Acres Cultivated.	Wages per Week.		Counties.	Allotments per 1,000 Acres Cultivated.	Wages per Week.	
	No.	*s.*	*d.*		No.	*s.*	*d.*
Westmorland	4	18	–	Bedford	70	12	6
Cumberland	6	18	–	Northampton	50	13	6
Lancaster	12	17	6	Leicester	49	13	–
Monmouth	15	12	–	Warwick	48	14	–
West Riding of York	16	16	6	Wilts	48	12	–
Northumberland	17	16	6	Notts	47	14	6
Cornwall	18	14	6	Bucks	45	14	–
North Riding of York	19	16	6	Oxford	44	13	3
Kent	19	16	6	Berkshire	41	12	–
Durham	19	17	9	Cambridge	41	12	6

ENGLAND

ALLOTMENTS PER 1,000 ACRES.



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Still in all such comparisons between either the number of agricultural labourers or the amount of their wages and the prevalence of allotments, we must not forget that the class of men for whom they are demanded are so often not agriculturists at all. There is also an interesting fact to be noted as to the prevalence of allotments in the midland district of England which the accompanying map shows. Starting from Bedford and running north to the extremity of Nottingham and south to the extremity of Wilts, lies the district where the system predominates, and at least 40 to the 1,000 acres are recorded. These counties are from Norfolk to the borders of Devon enveloped by an outer group where the proportion runs above 25 per 1,000 acres; while elsewhere they seem relatively fewer. A far better classification will, however, be possible when the return in unions is made public.

Conclusions as to England.

In offering these notes on the size of holdings, it is no part of my task to comment on the opinion of the numerous and able writers who have pronounced for or against the small farm system. While there is perhaps little doubt among practical men as to the more productive character of larger holdings, there is no sort of fixity in the general tone of public opinion, still less of political opinion, if I may separate the two on this question. At present it is undeniable that the current—how moved I need hardly here inquire—has set once again in favour of the smaller cultivator. The last Royal Commission on Agriculture, however, emphatically declined, on the evidence collected during its three years' sitting, to recommend any legislative efforts to "artificially "stimulate" the growth of a system which they pronounced to be ill adapted to the habits of the people or to the condition of agriculture in this country.(13) The evidence and reports of the very practical assistant commissioners they employed must have left them, on the data presented, little option in so deciding. Of course they recommended the removal of artificial obstacles to the cheap and ready transfer of land, a course which may or may not multiply small holdings.

That there are plenty of examples of small cultures in England to guide us if we choose to look around, and base our inquiry on general results, not on isolated instances, is the main conclusion I draw from the English figures. Scores of successful instances of small farming by suitable men, with suitable wives, on suitable soils and in suitable places, all of us can recall; but scores too, if not hundreds of cases, without looking beyond our English shores, may be marshalled where the small farmer has lived a more miserable existence than the far more lightly worked and better remunerated labourer. We are not called on to adopt without qualification the dictum from the times of Arthur Young: "Deduct "from agriculture all the practice that has made it flourishing, and "you have precisely the management of small farms." Neither on the other hand can those who use figures with some regard to the proprieties of statistical method, jump to the opposite conclusion, founded no doubt on generalisation from some isolated and perhaps garden plot experiment, that "a million labourers working for "themselves would produce far more wheat than the same land "does when cultivated by the most scientific farmers." Since the tendencies of the day are running counter to the large farm system in favour a quarter of a century ago, it is more needful for those who treat the matter in a Society such as this, to disabuse the public mind of the mischievous extravagance of this sort of language.

There never has been in England, there is not now, as my figures I hope have shown, any procrustean rule. All systems, both large and small, we may find tried here before we look abroad.

FOREIGN HOLDINGS.

The question of large and small holdings has never, I suppose, been treated in any statistical paper without some reference to the greater prevalence of small holdings abroad. Upon few questions has there been more controversy than on the lessons to be drawn from foreign example in this respect. France, Belgium, Holland, and Germany are countries to which one naturally turns to learn how their surface is divided, and with what result. The wide variety in the methods and scope of the agricultural statistics of the several contrasted countries, invalidates many comparisons which we see daily drawn, and greatly checks all efforts to obtain a fair contrast of the size of holdings. I would express therefore an earnest hope that one of the earliest efforts of the lately founded International Statistical Institute should be to procure greater uniformity of practice. Few subjects are more worthy of international attention at the coming meeting at Rome next Easter.

In a paper less intended to solve the knotty questions between varied systems of land tenure, than to elicit some fairly reliable basis of facts for future discussion, the question of the status of the cultivator as landlord or as tenant, is not so primary a matter as the size of the plots or farms in which land is actually cultivated, but it is a factor which ought not to be overlooked. With this object I have collected various items of information, unfortunately not always relating to precisely the same period, from the following countries: France, Germany, Belgium, Holland, Sweden, Italy, Hungary. I have not included data as to the United States of America, or any new country or colony where land is now being broken up. These can rarely with good effect be contrasted with the systems of older countries, where the ratio of the land to the population is so diametrically different. The limits of such a paper as this compel me but lightly and superficially to note the peculiarities of the surface distribution of foreign holdings. I have however appended a reference to a few of the sources of information to which I have had access, and to the authors I have consulted, so that others may pursue an interesting study. The list is far from exhaustive, but I would err did I not specially acknowledge the kind help I have received from the President of the International Statistical Institute, Sir Rawson Rawson, and from the President of the Statistical Society of Paris, M. de Foville, whose recent work, "Le Morcellement," I have largely consulted,(14) and whose advice and suggestions I have found most valuable.

FRANCE.

If my notes on the size of English holdings have been necessarily notes only, and far from a complete survey, this is infinitely more the case when I venture to put together those which bear on the agricultural subdivisions of the surface abroad. There is indeed no lack of material, official, and other available, but after a somewhat close study of the numerous returns, and the writings of many authorities, I had almost come to the decision that, from one cause or another, either from defects in the figures, or their failure to offer fair comparisons, much that I had noted, and much that is quoted every day as authoritative, would nevertheless not always bear close statistical dissection. Especially am I at a disadvantage in the case of France. I had hoped against hope that the publication of the results of the "Enquête Agricole" of 1882, originally expected in 1885 or 1886, would have been made in time for my using its materials in this paper. In default one has to go back for the fullest official survey to the "Enquête" of 1862, although figures somewhat less comprehensive on the size of holdings are to be drawn from that of 1873, and may be found in the "Statistique "Internationale de l'Agriculture" prepared in 1876 at the suggestion of the International Statistical Congress. In a recent paper of M. de Foville(15) he has treated fully of the question of land subdivision, and to his figures, as well as to the valuable reports of the lamented secretary to our Royal Agricultural Society here, Mr. H. M. Jenkins, I am largely indebted for information, although considerations of space forbid much of its reproduction here. Reference must of course be made in any really valuable study of French holdings to the earlier writings of many important authorities, and especially those of M. Leonce de Lavergne, and to various papers in our own Society's *Journal*, while many ephemeral pamphlets and letters on the perennial small and large holdings controversy in England have appeared. M. de Lavergne's work is one that draws a graphic picture of France in its several districts. It is not available to every English reader, but as a translation was sometime ago made in the columns of the "Farmer" by Mr. Kains Jackson, we may perhaps hope to have it reprinted as a standard volume on these subjects. Taking as I do the term "exploitation" as correctly analogous to what we here mean by "holding," although it would appear the term was perhaps withheld from some of the smaller plots at that date, the "Enquête" of 1862 thus divided the surface of France,(16) or so much of it as is accounted for:—

Holdings.	Number.	Percentage in each Class.
Under 12½ acres*	1,815,000	56·29
From 12½ to 25 acres	620,000	19·19
„ 25 „ 50 „	364,000	11·28
„ 50 „ 75 „	177,000	5·49
„ 75 „ 100 „	96,000	2·98
Exceeding 100 acres	154,000	4·77
Total	3,226,000	100·00

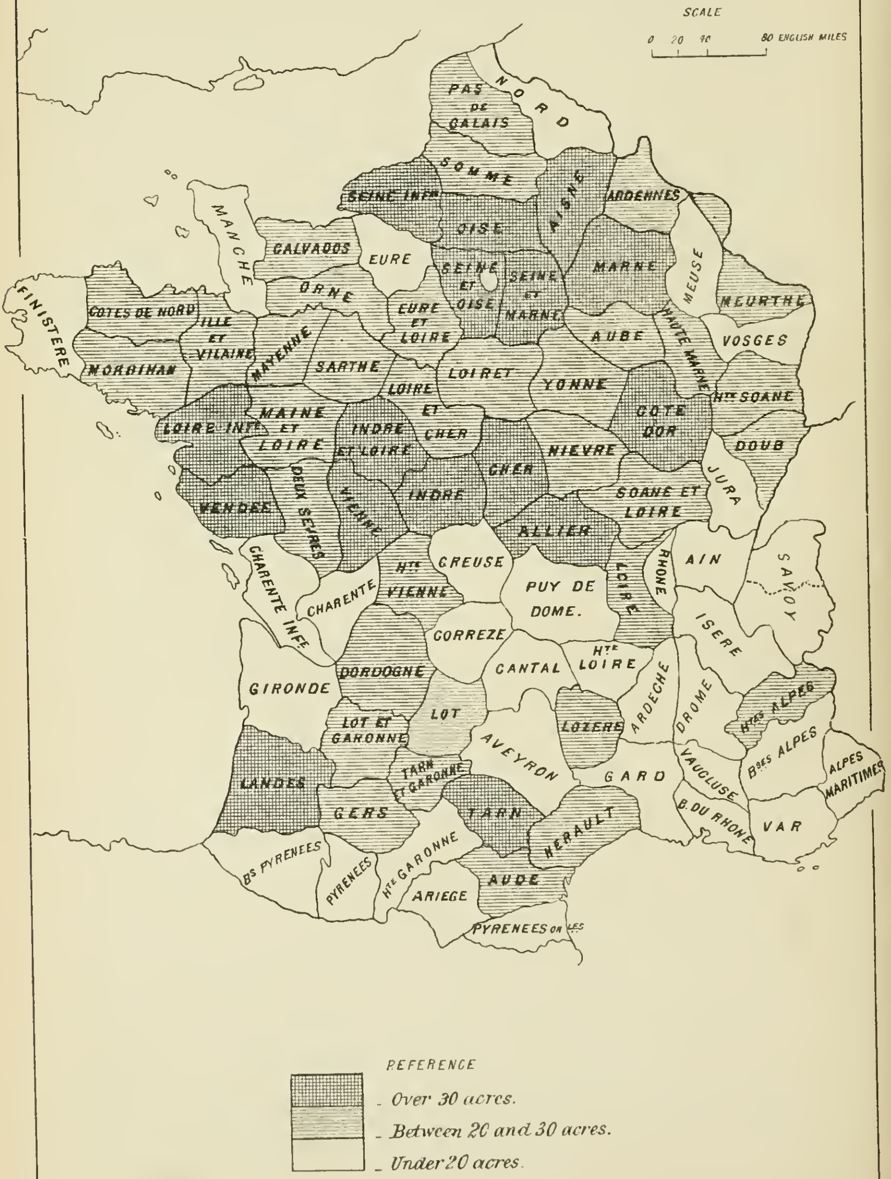
* Here, and in all the tables which give foreign measurements in their English equivalents, I have for convenience, as sufficiently accurate for general comparisons, taken the hectare (2·471 acres) as 2½ acres.

Assuming that the area thus analysed, which is exclusive of woods and waste, exceeded 83 million acres, it may be roughly taken that the 1,815,000 holdings of the smallest class covered somewhat over 12 million acres of the cultivable soil. Those which run between 12½ acres and 100 acres occupy more than half of the whole surface, or little less than 44 million acres; while the larger farmers with holdings of greater dimensions than 100 acres occupied a third of the agricultural land of France, or some 27 million acres. These groups do not correspond exactly with our English groups. So far as acreage is concerned we can only contrast the last with the extent of holdings here. The English holdings over 100 acres cover 18 million acres, or nearly three-fourths of the cultivated area, against a third only in France. The proportionate number of holdings of this class, which is 18 per cent. of the whole with us, is in France less than 5 per cent.

FRANCE.

AVERAGE SIZE OF HOLDINGS.

1873.



The inquiry of 1862 carries us a step further in another direction, and distinguishes those engaged in agriculture thus:—

(1). Proprietors, of whom:—		
Farming their own estates by bailiffs	57,639	
Actually cultivating their own properties	1,754,934	
Renting the land of others as farmers	648,836	
,, métayers	203,860	
Acting as day labourers on other farms	1,134,490	
Total..		3,799,759
(2). Agriculturists owning no land, viz.:—		
Farmers	386,533	
Métayers	201,527	
Day labourers	869,254	
Total..		1,457,314

In all there were thus employed 5,257,073, and of these agriculturists 34½ per cent. or 1,812,573 cultivated their own properties.

In 1873 the later inquiry(17) divides the holdings of France in the following proportions, which are rather difficult to reconcile with the earlier figures:—

Cultivated by	Number.	Extent in Acres.	Mean Extent in Acres.
Owners	2,826,388	42,530,000	15·0
Tenants	831,943	29,898,000	35·9
Métayers	319,450	11,915,000	34·1
Total	3,977,781	84,343,000	21·2

Thus 71 per cent. of the number were worked by their owners, 21 per cent. by farmers, and 8 per cent. by métayers; while so far as extent was concerned, the proportion of the cultivated surface of France worked apparently by its proprietors was just over *one half*, while tenants, as with us, occupied 36 per cent., and the system of partnership or métayer farming prevailed over 13 per cent. of this country. What the new returns will reveal we have yet to learn, but the apparent omission of the smallest "exploitations" altogether from the earlier returns, has raised some apprehension lest the newer figures may be also similarly defective. The map opposite gives a rough idea of the mean size of French holdings in each department in 1873.

M. de Lavergne's round figures(18) as to the distribution of ownership in France in three nearly equal divisions, whereof one-third belonged to the small, another to the medium, and the last to the large owners, are often quoted. He placed 50,000 only in the last named, 500,000 only in the medium, and 5,000,000 in the small property group, but even here there seems room for much question.

The *côtes foncières* may be appealed to from time to time to show the increase or decrease of the items on the taxing roll, but the number of *côtes* is necessarily far greater owing to double entries than that of actual owners, and this helps to confuse the issue. In his recent work, "Le Morcellement," M. de Foville(14) classes the properties of France in five divisions, which as to number and area stand thus, put roughly in English measure and in round numbers :—

	Number.	Per Cent.	Acreage.	Per Cent.
Under 5 acres	10,426,000	74·1	13,028,000	10·5
5 to 15 acres	2,174,000	15·5	18,857,000	15·3
15 " 125 "	1,352,000	9·6	48,045,000	38·9
125 " 500 "	105,000	0·7	23,895,000	19·1
Over 500 acres	18,000	0·1	20,045,000	16·2
	14,075,000	100·0	123,870,000	100·0

So that when even this excessive roll of nominal landowners in France is referred to, the extremely small properties under 5 acres cover but a tenth part of the surface. We have not the data now which we can compare properly with these French ownerships. Our new Domesday book of returns of owners of land in 1873 is admittedly too full of errors for confident statistical use, but were that return as it stands, to be quoted alongside of that we have mentioned, it gives 898,000 nominal owners under 50 acres out of 973,000, a quota of 92·9 per cent., which curiously enough not unfairly compares with the 93·9 per cent. of the French owners also returned as holding under 50 acres. The largely non-agricultural character of many of these English owners must be admitted.

It is now however well understood that nothing like 14 million landowners exist in France, although the *côtes foncières* attain that number, and the figures of M. Gimel in 1883 make it not unreasonable to assume that the owners may be 59 per cent. of the *côtes*, or over 8 million souls. According to the evidence of the late secretary to the Royal Agricultural Society,(19) who was a good authority on this point, and who after local inquiry acquiesced in this estimate, the assumption that there are 8 million of owners may be accepted. But even this is true only in a limited sense. Many of these are hardly agricultural persons. They include extremely microscopic proprietors, for 5 or 6 millions of the *côtes foncières* are charged at less than 4*s.* annually ; and the authority of M. Lecouteaux, Professor of Rural Economy at the "Institut "National Agronomique," was invoked by Mr. Jenkins(19), in his evidence before the Royal Commission, for the statement that of the 8 million owners of French land, 3 million are inscribed on the pauper roll as exempt from taxation.

Many are the hindrances to successful agriculture presented by the much broken, interlacing, and improperly bounded properties of so large a part of France. This is an inevitable evil if such cases are common as that quoted in the "Enquête Agricole" of 1862, where in a single commune of some 2,000 acres extent 270 proprietors represented no less than 5,348 "parcels" of land. This diffusion of scraps of property is thus worse than the smallness of the holdings, and many plots are often consolidated in a single exploitation, as in one case quoted by Mr. Jenkins, where a field of fifty acres belonging to nineteen owners was cultivated by a single tenant. Many pictures have been drawn of the constant friction and quarrels over small strips of land, on which you cannot plant a tree, because you cannot legally do so within two yards of your neighbour's boundaries. Such too are the plots of which Mr. Richardson speaks in his interesting "Corn and Cattle Districts of France,"(20) where "cultivation is impossible except with a spade, and that "must not be a full-sized one!" But France is not all thus parcelled out; and as I have shown that England is not all large farms, so France is not made up of small. Neither must it be forgotten that there is a range of variety in her crops we cannot emulate here. Thus her vineyards exactly suit the conditions of small individual workings. Even her poor land and wastes, according to Arthur Young,(21) were far better than our northern moors, and the soil and the climate of the mountainous districts of the Pyrenées or Auvergne make culture possible which could not be emulated on the mountains of Scotland or of Wales. Almost self-contained in the variety of her products, France has her vast wheat area, seven times our own, her meat producing and dairy districts in Normandy and La Vendée, her mutton and wool, sugar and salt, flowers and vegetables, oil and wine. The contrast makes close comparison impossible, though doubtless there are districts where no great difference of climate to our own occurs. Comparative survey will show her inferiority to our own agriculture in the average yield of wheat or the production of meat. No doubt many cattle and cows especially (as the Tables VII and VIII in the appendix show) are to be found in some departments, where the *morcellement* of property has gone on most rapidly. M. de Foville, who takes this view, instances(14) the Bouches du Rhône, where the proprietors are twice as numerous as they were, and 2,000 head of stock counted in 1812 are now 10,500. Again, in the Hautes-Pyrenées 48,000 have become 99,000, and in the Haute-Loire 52,000 have reached 121,000. The starting point chosen for these contrasts is a long way back, and a shorter survey would not, I am inclined to believe, show like results, although we find increasing areas of cultivation. The cows and oxen of France are not, as with us, kept for milk and meat alone, but do the work of the holdings where other labour than that of the peasants themselves is resorted to. That I may do no injustice to the advocates of small French holdings, who wish to urge their case against the depressing pictures drawn by Lady Verney's pen, I quote for what a single illustration may be worth, the complete comparison which is given of the growth of agricultural productions in the commune of Vensat, originally selected by M. Hyppolyte Passy,(22) a strong advocate of the *petite culture*, as justifying his views. The information is given in a prize essay by Dr. F. Jusseraud, the *Maire* of the commune, and the later figures are summarised from those given by M. de Foville,(14) and obtained from the very latest French inquiry.

		Commune de Vensat (Puy-de-Dôme).		
		1791.	1842.	1882.
Cultivated land	(hectares)	1,035	1,466	1,567
Farm crops	„	550	—	1,350
Fallow	„	350	—	20
Permanent grass	„	40	—	41
Vines	„	45	—	24
Gardens and orchards	„	50	—	132
Uncultivated	„	540	—	Nil
Land built on, &c.	„	38	—	46
Population	(number)	850	1,213	872
Côtes foncières	„	—	591	652
Parcelles	„	—	4,600	4,103
Oxen and bulls	„	160	80	38
Cows and calves	„	140	592	537
Sheep	„	1,900	446	278
Pigs	„	—	242	244
Rent of 1st class land	(frs.)	55	125	160

How far such an advance is typical may be questioned, but it will be noted that while cultivation has been greatly extended, live stock has declined of late, sheep to a remarkable extent. The increase in cows in the first half of the century has not been maintained in the second half. Nor has either the larger area of cropped land or the growing sub-division of the soil sufficed here to check agricultural depopulation, and that worst famine, a famine of men, is in the last forty years apparent.

Germany.

Very full statistics of the size and conditions of agricultural holdings have been officially published quite lately by the German Government,(23) and I offer in four tables in the appendix an analysis—somewhat reduced from the many columns of figures in the official tables of the 1882 inquiry—exhibiting very clearly the distribution of holdings in the empire as a whole. It will be seen that the number of holdings in the empire is 5,276,000, and that the average size of a holding is 15 acres, or 19 acres, according as we do or do not include the woodland embraced, but distinguished, in the area accounted for in these tables. I must refer to the tables themselves for a full understanding of the relations which the relative classes bear one to another, and would call special attention to the care in distinguishing the holdings occupied by owners from those rented by tenants, a distinction I hope to persuade our own Government to adopt here.

The subdivision here exhibited is remarkably great. Over 3 million German holdings out of a total of 5¼ millions fall below 5 acres in extent, that is 57 per cent. of the whole number, or almost twice the percentage which this class forms in England, where we found them 30 per cent. of the whole. The acreage covered by these small plots, which was little over 1 per cent. in England, seems to be nearly 6 per cent. in Germany. Proprietorship farming, these tables show, prevails absolutely on rather more than half the German holdings, and less than one-sixth are entirely in tenants' hands.

In Germany, as in France, and as in England, there is always danger in neglecting to observe the local differences which distinguish the agricultural systems of particular provinces, and we find a very different degree of subdivision of the soil in the west and in the east, in the Rhine provinces, in Westphalia, or in Upper Bavaria, where the small holdings predominate, or the plains of Northern Germany and East Prussia, where farming on a larger scale prevails. Nor is it without bearing on the subject to notice how a recent attempt in Pomerania artificially to increase small peasant holdings by the sale of crown lands in small lots, and again in Eastern Prussia to promote peasant ownerships, proved a practical failure, although the voluntary gifts of land and granting of allotments by landed proprietors to labourers in supplement of or in lieu of wages, has been somewhat more successful. A study too of the districts where the beetroot industry is establishing itself, will show the advantage of new and special industries, whether in Saxony, in Brunswick, or more recently around Dantzic.

In order to contrast the special condition of different parts of the German empire, I have also compiled, from the data appearing in M. de Foville's work, "Le Morcellement,"(14) a short summary in English measurement, which will indicate how far the local characteristics of land division differ in the kingdom of Prussia, and in two special districts round Aix la Chapelle and Dantzic respectively from those of the empire as a whole; such a table shows :—

Number and Classes of Holdings.

	German Empire.	Prussia.	District of Aix la Chapelle.	District of Dantzig.
Under ½ acre	897,085	612,992	3,714	601
½ „ 5 „	2,112,764	1,252,166	19,683	5,007
5 „ 50 „	1,951,775	967,641	19,382	9,560
50 „ 500 „	300,762	195,495	1,438	5,565
Over 500 acres	13,958	11,902	15	417
	5,276,344	3,040,196	44,232	21,150

Such a table shows that while Prussia has 20 per cent. of her holdings of no greater size than half an acre, in such a district as that round Dantzic there are not 3 per cent. of this class.

For further illustration I draw from the interesting series of reports published in the three volumes entitled "Bäuerliche "Zustände in Deutschland," and lately published by the Verein für Socialpolitik,(24) which are full of interesting local details of the German peasant's condition, a picture of a typical district in the Grand Duchy of Baden, Reichen by name. Here the cultivators include both big, medium, and small farmers, as well as mere labourers and petty holders, who are far less numerously represented than in some other districts. Nevertheless we meet here the feature to which we have a parallel in England, but which is specially worthy of note, that a large proportion of the smaller cultivators are really employed in other industries than agriculture.

Size of Holdings in Reichen.	Total Number of Holdings.	Cultivators.		Acreage in Each Group.	Percentage of Area.
		Exclusively Agricultural.	With other Pursuits.		
Under 12½ acres	122	30	92	525·0	25·1
12½ to 25 „	22	14	8	366·7	17 9
25 „ 50 „	27	24	3	971·4	46·5
50 „ 125 „	3	3	—	218·2	10·5
	174	71	103	2,081·3	100·0

The lowest grade of holding, where two-thirds of the occupiers are labourers, covers here only one-fourth of the whole area, the remaining three-fourths of the cultivated surface is in the possession of farmers proper, of whom the holders of from 25 to 50 acres, in comparison with the other classes, occupy the largest portion of the soil (almost one half of the entire area). No great change in the ratio of the distribution of property with respect to individuals can be recorded as having taken place in that district during the last ten years. Advantageous marriages, and extra purchases of properties, together with a stagnation in the rate of increase of the population—which has only increased by seven since the year 1864—have effectually prevented any injurious breaking up of the small properties. Successful *petite culture* here depends on favourable conditions in the tenure of land, combined with the plentiful opportunities presented to the small holders of adding to their incomes by non-agricultural work, in this instance in adjacent stone quarries. I would refer those interested in finding other local examples of peasant life in Germany, to the pages of the last quoted work.(24)

Of the 5,276,000 agricultural holdings in the German empire, live stock appears to be kept on 4,442,000, or 84 per cent. The distribution of this stock on the different sizes of holdings is elaborately detailed for every class of holding mentioned in another portion of the general tables, which I have condensed in the appendix, while had the space at my command permitted, I might have added to those there appearing. From them very interesting information could no doubt be drawn if we could compare local proportions of the live stock of particular districts with that of England. The German returns(23) distinguish, as we so often forget to do in reading foreign records of live stock, the working cattle, which there form so large a proportion of the whole. The following much abbreviated figures may be offered, showing simply the general proportions in at all events the larger groups of holdings, and it will be fitting that we take note of the stock of goats as well as the animals with which we are more familiar here, for they are a large element in the economy of the small farm:—

Holdings in Groups according to Size.	Horses.	Cattle.	Sheep.	Pigs.	Goats.
1 to 5 acres ...	56,873	1,614,809	751,848	2,083,682	1,975,902
5 „ 25 „ ...	605,045	5,213,204	1,684,600	2,795,342	337,740
25 „ 250 „ ...	1,865,214	7,088,651	7,228,971	3,071,948	133,436
250 and over	587,288	1,537,508	11,451,538	480,294	5,449
	3,114,420	15,454,372	21,116,957	8,431,266	2,452,527

The numbers of each class of stock per 100 hectares are given in the German returns for each group of holdings, but contrasting the results with the stock per 100 acres for comparison with our English figures, we get these:—

Holdings in Groups according to Size.	Horses per 100 Acres.	Cattle per 100 Acres.	Sheep per 100 Acres.	Pigs per 100 Acres.	Goats per 100 Acres.
1 to 5 acres	1·2	35·4	16·5	45·6	43·1
5 „ 25 „ ...	3·4	29·4	9·5	15·8	1·9
25 „ 250 „ ...	4·9	18·7	19·1	8·1	0·4
250 and over	3·0	7·9	58·9	2·5	—

The general average for the empire is 3·9 per 100 acres for horses, 19·4 for cattle, and 26·5 for sheep; the latter as with ourselves predominating on the larger farms. These figures may be contrasted with the stock we possess here, which, without reckoning animals on holdings under one acre, is 4·4 for horses in England, 18·9 for cattle, and 67 6 for sheep.

SWEDEN.

Few Swedish statistics of holdings came within my reach in the time, necessarily short, devoted to the preparation of this paper. Sweden was not specially reported on by the Royal Commission on Agriculture in 1882. I quote therefore from Mr. James Howard's work on Continental Agriculture ([25]) some of the interesting details supplied by the secretary of the Royal Agricultural Society of Sweden in 1870. Mr. Howard's informant, Mr. Juhlin-Dannfelt, speaks of the surface as pretty evenly divided between large and small holdings. Only in Scania are the larger farms exclusively arable, and the proportion of arable land diminishes as one travels northward. Forests and rough pastures, often of considerable extent, usually form part of the Swedish farms even when these are of moderate dimensions. Mr. Dannfelt says the largest farms round Stockholm reach 5,000 acres of arable land, with pasturage running to 20,000 acres of grass and forest. He puts the smallest farm which will entirely maintain the family who till it at 40 acres of arable and meadow land, and with this an appanage of from 50 to 100 acres of rough pasture and forest. While revising this paper, Dr. Sidenbladh, Director of the Central Swedish Statistical Office, favours me with an important correction on the latter point. He estimates the minimum cultivated area for a family's maintenance at half the above figure or 20 acres. Farms round Stockholm too, he put at 300 to 500 acres only of arable land, with three or four times as much rough grass or forest. Still even these are dimensions very different from the "small" farms of Belgium or France. Where more minute holdings prevail in Sweden they are, as is so often the case in all countries, worked by persons who have some other resource than agriculture proper for their maintenance.

Taking the surface of Sweden at 100 million acres, 44 million of this is forest. The cultivated portion is limited to little over 12 million acres, of which less than a third grows corn, the wheat area however being but 150,000 acres. The number of properties according to Mr. Howard's correspondent was only about 230,000.

Mr. Gosling ([26]) in his report to the Foreign Office on Swedish land tenure, published by our Government in 1870, finds 200,000 peasant proprietors, and 40,000 tenant farmers, regularly employed, with their families, on farm labour, assisted by 310,000 labourers, of whom as many as 141,000 were women. Altogether he speaks of 290,000 Swedish landowners; and with regard to the size of their estates, two-thirds of which are occupied, he says, by peasant owners, a curious practice exists of reckoning the extent by a measure—the "mantal"—averaging some 1,488 English acres each, but varying in different districts according to the productive capacity of the soil, so as to be only 274 English acres in Malmöhus, and 31,716 acres in Norbotten. This introduces an element of uncertainty into these older statistics.

I am greatly indebted therefore to Dr. Sidenbladh, of Stockholm, for furnishing me with the latest official estimate of the size of Swedish ownerships of cultivated land based on the Agricultural Statistics of 1884. This is as follows:—

Under 5 acres	73,000	owners.
5 to 50 acres	205,000	,,
50 ,, 250 ,,	29,000	,,
250 and over	3,000	,,
Total	310,000	,,

Of these three-fourths farm their own estate, and only one-fourth let to tenants—and it will be observed 90 per cent. of the properties fall below 50 acres.

A special form of *petite culture*, which I have not noticed as recommended here, prevails in Sweden, whereby small plots called "torps" about 180,000 in all, are let to labourers, who pay rent not in produce or money, but in labour; one to three working days a week, and certain extra work by women at harvest, being the usual terms.*

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* Payments in kind seem to prevail largely in Sweden. While yearly labourers may receive a money wage and board at their master's table, they may also if in homes of their own be remunerated on some such scale as the following, which at once illustrates the minute detail of such arrangements, and shows the estimated annual cost of a labourer's family's maintenance as set out by the two authorities above quoted.

	Mr. Juhlin-Dannfelt.	Dr. Sidenbladh.
	Cubic feet.	Cubic feet = hectolitres.
Wheat	2	2 = 0·52
Rye	26	27 = 7·07
Barley	12	12 = 3·14
Peas	2	2 = 0·52
Potatoes	20	12 = 3·14
Herrings	—	80 livres = 34·00 kilog.
Salt	—	40 ,, = 17·00 ,,
Hops	—	2 ,, = 0·85 ,,
Wool	—	2 ,, = 0·85 ,,
Milk per diem	0·2	½ kanne = 1·3 litre
Skim milk ,,	—	½ ,, = 1·3 ,,

HUNGARY.

Although my statistics in the case of Hungary are not so recent as in some other cases, the report(27) presented by Professor Wrightson in the "Royal Agricultural Society's Journal" in 1874 is too characteristic of the peculiar agriculture of that great territory to be passed over without reference. Assuming that the Hungarian "joch," considerably smaller than the Austrian measure of the same name, practically represents little more than an English acre (1·0667), the surface appears to be divided in the following proportions:—

Ownerships.	Number.	Acres.	Per Cent. of Area.
5 to 30 acres	2,348,110	15,000,000	32
30 ,, 300 ,, ...	118,981	6,700,000	15
300 ,, 1,000 ,, ...	13,748	6,600,000	14
1,000 ,, 10,000 ,, ...	5,195	14,200,000	31
Over 10,000 acres	221	3,900,000	8
	2,486,255	46,400,000	100

This total area does not exactly agree with the area under crops shown in our official statistics here, and the explanation of the difference is one of the many points on which further details would be welcome, but Mr. Wrightson supports his figures of Hungarian landowners by a reference to M. Keleti. Half or more than half therefore of the surface thus accounted for, according as we draw the line above or below the 1,000-acre estates, appears cultivated in the large properties, farmed usually by their owners on a somewhat imposing scale, which is the distinctive feature of Hungarian agriculture. Large farming is certainly seen here at its fullest development, and the system pursued is often eminently businesslike and complete.

As against the 2,486,000 landowners great and small above enumerated, Professor Wrightson reports only 48,000 tenants. I therefore in this case am compelled to take ownerships rather than tenancies as the feature of land distribution to be noted. A somewhat extreme climate and some scarcity of labour are disadvantages under which Hungarian agriculture labours. Cattle are diminishing, and sheep still more so in Hungary, and the

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Mr. Juhlin-Dannfelt adds to the above an allowance of wood, sufficient land to grow 10 cubic feet of potatoes, and a sum equal to 10*l.* in money, Dr. Sidenbladh allows enough land for 6 cubic feet of potatoes (or 1·57 hectolitres), and as an alternative to the wool keep for one sheep, with from 140 to 170 frs. as money wages, including sundry supplementary items. Free lodging, fuel, and medical attendance are also provided by the proprietor, who pays likewise the local and national taxes.

frequent occurrence of the dreaded invasion of cattle plague from across the Russian frontier affects alike peasant and landowner. The system of meat manufacture, although brought to more perfection in some cases, where large feeding establishments exist, would not generally suit our ideas of production, for oxen we read are commonly worked up to 13, 14, and 17 years of age. Sheep are shorn until they are 8, 10, and even 13 years old, and are then turned into what is naturally rather inferior mutton.

As fairly illustrative of the large farm system, I select from a variety of estates farmed by their owners, the following. In this list the "farms" quoted are by no means among the largest to be found, for an independent report from Pesth speaks of "farms" of as much as 225,000 acres, utterly distancing many American giant ventures :—

	Total Area.	Arable.	Meadow and Pasture.	Bulls.	Cows.	Fatting Cattle.	Working Oxen.	Store Cattle.	Sheep.
	Acres.	Acres.	Acres.						
Tarnok	3,430	1,390	1,983	6	60	12	60	139	2,110
Talos	8,038	4,931	1,010	4	40	48	200	125	6,900
Harkánye	10,812	7,420	2,756	5	250	—	340	250	5,250

As types of successful *petite culture* in France or Flanders are more plentiful than examples of the farming of Hungary, I venture to condense and reproduce Mr. Wrightson's account of the estate of Tot-Megyer. Its 22,669 acres are flat, rich, and open. Bounded by no hedge, it resembles the great fen or marsh farms of our eastern counties. The various crops are sown with English drills, and English reapers, and threshing machines and other implements are in general use. The surface distribution of this huge farm shows that one half, or nearly 12,000 acres, is arable, and only a little over 10 per cent. of the whole unfitted for use, as wood or waste. Not 100 acres out of the 22,669 are let to tenants. The crops include wheat, rye, maize, sugar, beet, mangold, and forage crops. That this plan of large landlord farming may well claim a place by the side of samples of peasant proprietors' work is apparent, when it appears that the wheat yield equals 24 bushels to our acre, while the general average yield of the country is put by good authorities at half this figure, and that the yield of barley at Tot-Megyer is something approaching our own or 33 bushels per acre against an average of 16 to 20. Oats yield 50 bushels against a similarly small general average. The live stock on such a farm as that embraced 346 horses, of whom 150 were foals, 787 head of cattle, of whom 400 were kept for the plough, and a flock of over 21,000 sheep.

Holland.

So much valuable and comparatively recent information respecting the agriculture of Holland and the classes of its farms is to be found in the interesting reports of the late Mr. H. M. Jenkins to the Royal Commission on Agriculture, that I may refer the inquirer to these for the best picture of the holdings of the Dutch farmer. But the most recent statistics as to the size of Dutch farms are those which may be drawn from the "Statistical Annual "of the Netherlands"(28) for 1885. This gives the distribution as under:—

Size of Holdings, 1884.	Number.	Occupied by Owners.	Occupied by Tenants.
Not exceeding 12½ acres	66,842	40,576	26,266
12½ to 50 acres	58,923	37,113	21,810
50 " 125 "	20,906	11,131	9,775
Over 125 acres	3,554	1,676	1,878
	150,225	90,496	59,729

In the smallest class the owner farmers are as 3 to 2, while in the two larger groups over 50 acres, the owner farmers and the tenants are more nearly equal. On the whole we often have in Holland the English tripartite division of the agricultural class into owner, tenant, and labourer. The numbers of peasant proprietors vary considerably in different districts. There are two distinct types of these. In north and south Holland dairy farmers, in north Brabant and in light land districts arable farmers. Mr. Jenkins(29) describes them at the time of his visit, seven years ago, as mostly overwhelmed with mortgages, very many forced sales occurring annually. He supports this statement with a long array of locally collected opinions from Dutch agriculturists. But it is only fair to say that his conclusions are challenged by Dutch authorities of high standing. There is a peculiarity in the Dutch statistics which I have not observed elsewhere, insomuch that they officially recognise the cow-owning peasant who has figured so largely in the recent political treatment of this question at home. These men, according to Mr. Jenkins's interpretation of the figures when under examination by the Royal Commission, were mere labourers or men with some non-agricultural occupation, but who contrive to keep one or more cows or a ewe or goat or two to milk, with a few pigs probably on their plots. Some 36,600 of such peasants appear in the tables of the Royal Commission's report, and the classes of farmers proper, great or small, in each province in Holland, grouped not according to the extent of their holdings, but with reference to the number of "horses" which they employ, are given in a table quoted on the authority of Mr. Jongkindt Connick, editor of the "Agricultural Statistics of "the Netherlands," and of Dr. Pitsch, of the State Agricultural School at Wageningen, I had reproduced in a much condensed form this table for the purpose of this paper, but finding that its totals fell considerably below those of the "holdings" I have just quoted, and having my attention called by Professor Beaujon to the more recent data appearing in the "Statistical Annual of the "Netherlands," I give a brief summary of its results.

In the table furnished by the "Annual" of the Dutch Statistical Institute, the so-called "cattle peasants" of Mr. Jenkins's report assume a much more important status than he allowed them. They are in fact the owners of 6 or more cows a piece, though on what area of land is not stated. The official record of arable farmers is here given, as above stated, according to the number of horses or draught cattle employed, the totals for 1884 being as under:—

Agriculturists.	Number.	Percentage of them	
		Owners.	Tenants.
Cowkeepers with 6 or more cows	32,995	57	43
Farmers using 1 horse or ox	48,725	68	32
,, 2 or 3 horses or oxen	21,085	63	37
,, 4 or more horses or oxen...	11,559	54	46

It will be observed that the total is still considerably under the 150,000 holdings above referred to, and I assume that the omitted cultivators are those of the smallest class. Great differences are apparent in the proportions of ownership farming between the several Dutch provinces. Thus in Groningen 83 per cent. of the cattle owning farmers and 85 per cent. of the arable farmers are proprietors of their farms, or perhaps more properly copyholders under the Beklemregt of that province, while in Friesland the owners form but 42 and 49 per cent. respectively in each class. The subdivision of land seems on the whole less excessive in Holland than in France or Belgium.

BELGIUM.

If I have not yet referred to a country so continually quoted as Belgium in all controversies over the size of farms, it is because the facts are now more familiar to us than of most foreign States, and because the very exhaustive treatment which the contentions of M. de Lavaleye received so lately at the hands of the late Mr. Jenkins is readily accessible in the volumes of the Royal Agricultural Commission.(30) The recent census of 1880 gives later data as to Belgian holdings, and the general result of that inquiry, which has been lately made public in a complete form,(31) and embellished with useful and instructive maps, may be gleaned from the tables in the appendix to this paper. Very marked is the progress of the subdivision of property here, for comparing 1880 with 1846, it appears the 572,550 holdings of 1846 have now become 910,396, and the increase since 1866 only is over 183,000. All that increase has occurred in holdings under $7\frac{1}{2}$ acres, and eight-tenths of the increase is visible in the lowest class of all, below $1\frac{1}{4}$ acre. There is little doubt that in this case the opposite extreme to the error of the French inquiries has been followed, and all manner of minute holdings are here grouped, including, as M. de Foville has pointed out, not gardens only, but "jardinettes." The average holding is $7\frac{1}{2}$ acres. A second table enables us to see, as I have arranged the columns, what share ownership farming forms throughout the country. A further table exhibits the number and the acreage in each of the Belgian provinces, and this is worthy of attention by the student of the distribution of holdings, while interesting details are also given as to the agricultural workers in each province, and the large amount of female labour involved in these small holdings. The proportion of owner-farming varies in relation to the surface occupied, from only 16 per cent. in western Flanders, to 65 per cent. in Luxemburg; but on the whole, some two-thirds of the Belgian surface is cultivated by tenants.

The fallacy which used to be often heard, that Belgium with her relatively large number of stock feeds more beasts and therefore produces more meat than England, was pretty well disposed of by Mr. Jenkins in a paper(32) read before the London Farmers' Club in 1872, and it was then shown, as the most recent trade statistics continue to show is still the case, that Belgium is far from being a self-supporting country. I find there was actually a net increase of 91,000 cattle imported in 1880; and if there are to be found on Belgian acres 25 head of horned stock per 100 persons, and 47 per 100 hectares of surface, these are very largely draught animals, and their weight much inferior to our own. Their sheep, always a small supply, have diminished from 586,000 to 365,000 concurrently with the growth of Belgian *petite culture.* The production of meat per acre in Belgium is estimated not to exceed 40 lbs. per head of the population, against a native production of 83 lbs. per head in this country. Practically, as the report submitted to our Royal Agricultural Society in 1870 showed, the small Belgian farmer produces no meat but pork, and consumes none other himself.

Fifty years ago or more the agriculture of Flanders was deemed the most productive and advanced in Europe; but while English agriculture has made enormous strides in the interval, that of Flanders has remained where it was. Belgium, like England, like Germany and France, is suffering deeply from agricultural depression,(33) and the small proprietors, hardest hit of all, are calling for protective duties to save them from foreign competition, or to restore that agricultural prosperity which minute subdivision of holdings has failed to secure for them.

ITALY.

The condition of agriculture in Italy has, it is well known, been the subject of a long and serious inquiry which has lasted over seven years, and the reports of which cover some fifteen volumes, in double that number of parts.(34) Relating however, as these do, to separate provinces, it is very difficult, even with the aid of Mr. Beauclerk's Reports to the Foreign Office,(35) to gather sufficient *general* figures to be useful as to the distribution of holdings in Italy as a whole. The commission pointedly remark, that Italian agriculture varies in character throughout the peninsula as much as that of Scotland from Spain or Norway from Egypt, and all types of occupations abound, and large and small farmers occur in the closest contiguity. Signor Bodio too has been good enough to warn me of the defects of the present financial registers of Italian properties, and the absence of complete and reliable data as to holdings. The number of owners of landed property has been estimated at 5 millions. These however are separate *côtes*, not proprietors, and M. de Foville (14) follows the census in taking a little over 4 millions, of whom a third were women, and nearly an eighth the owners of houses only. As in France and Belgium, small proprietorships prevail, at all events if I except Calabria and Sicily. Agricultural depression in rural Italy is, and has been for some years, extreme, and the taxation of the peasant farms very heavy. Out of 1,500 million francs of net revenue, without deducting mortgage interest, some 300 millions of direct taxes are paid, without taking account of other imposts like the salt tax, cattle tax, personal property tax, and indirect charges. In Calabria, where small properties intermingle with the larger ones, the holdings of two to three acres are very largely planted with vine, figs, or olives, supplying work and income to the proprietor for the year, but the returns are often very small. Bread itself is sometimes wanting to these peasants, and in the winter of 1877 it is recorded that the men eat several fields of raw sulla like cattle. From Ravenna a similar story comes. From Ancona, where the Métayer system prevails, reports are little better, and the system itself is reported to afford cover to constant petty thefts by the tenants of the produce. In the Marshes, where vines cover 30 per cent. of the surface, a curious system of agricultural holding prevails, ancient associations farming land under old charters; thus, 170 families in a group own 3,000 acres. In Arquata 42 separate associations, including 1,839 families, own 10,000 acres. Cultivation in Italy varies from the orange grove to the pine forest. In large highly farmed properties and small and miserable peasants' holdings, conditions the most opposite of course prevail. Properties of 60,000 acres, and petty estates held by eight or ten families in undivided proprietorship, stand side by side, and the lesson of the late inquiry is rather the misery of the small holder than his relative success in bad times.

International Comparisons of Produce.

It may be useful to close these notes of the extent of agricultural holdings in various European countries with one or two comparative figures illustrative of the agricultural position of each. They cannot be of entirely conclusive authority. The difficulties inherent in any such tabulation, the frequent incongruity of the statistics employed, and above all the immense varieties of modes of culture and conditions of production whether as to soil, climate, or markets, even within the limits of each country—which I have from time to time indicated in these pages—forbid too confident a use of such data. Nevertheless, as to certain leading facts and features the specific records of surface areas, density of population, yield of wheat, and number of recorded live stock given in the following tables will at all events furnish matter for careful inquiry, and it may be for the discovery, by those who have the time and patience to make the investigation, of the exact place, amongst many others, which the size and grouping of farms occupies as one of the factors in the aggregate production of any particular country.

I have taken the population from our last Foreign Abstract,(36) and the density of the people per square mile of territory. Avoiding for the reasons stated at the outset of my paper the pitfalls which surround a computation resting on so-called "cultivated "area," I have indicated the live stock, distinguishing cows from other cattle borne on each square mile of territory at the most recent date available. The comparison of total areas thus made is one directly against ourselves in this country, for the United Kingdom has nominally 38 per cent., and England herself nominally 24 per cent. of her surface reckoned uncultivated. Were we prepared to accept this somewhat indefinite term as meaning the same thing abroad—as apparently M. Sbrojavacca (37) has done in the Bulletin of the International Statistical Institute—France, Belgium, Germany, and Hungary would have 9 to 10 per cent. only in this category, and Austria less than 7 per cent. It is however certainly not to the discredit of our British agriculture, and our agricultural system with its large variety of holdings and acreable predominance of medium farms, that while there is only one country, Belgium, with which as regards density of the people we can be compared, England holds the first place as a stock-rearing and grain-growing community. Her flocks of sheep represent just ten times those of Belgium on the same area, three times those of France on the same area, and nearer four times than three times those of Germany. As regards cattle, Holland, Belgium, and Germany have more cows than we have, but then our cows hold a different rank from the poor beasts of burden they often are abroad. We have in England more than Austria for each square mile, more than France, and many more than Hungary or Sweden ; while as regards oxen generally we head the list with ease. And it must not be forgotten that mere numbers are unfair units for comparison. The greater weight and superiority of our stock is acknowledged by the special advocates of foreign countries. On the basis of the calculations (38) I submitted in my paper at the Montreal meeting of the British Association in 1884, I cannot estimate the yearly out-turn of butcher's meat from the farms of the United Kingdom at less than 34 lbs. of beef, 17 lbs. of mutton, and 12 lbs. of pig-meat for every acre under cultivation. I have nowhere seen a parallel estimate for continental meat production. We may indeed be certain that it must fall far short of this aggregate of over 62 lbs. per acre, or 83 lbs. for each unit of the population. Leaving out for the moment all those cereal products which are sometimes regarded specially appropriate to a comparatively large farm system, the mixed farm system of England can without fear challenge the smaller holdings of the continent in the production of animal food.

Countries.	Total Population.	Inhabitants, per Square Mile.	Cows, per Square Mile.	Other Cattle, per Square Mile.	Sheep, per Square Mile.
	No.	No.	No.	No.	No.
United Kingdom	35,004,000	288·5	32·8	56·8	238·7
England	24,614,000	483·4	36·0	57·6	322·1
Wales	1,361,000	184·0	38·3	59·0	340·0
Scotland	3,736,000	122·6	13·6	24·2	220·0
Ireland	5,175,000	159·0	43·6	85·0	103·5
Austria	22,144,000	191·7	35·7	38·4	33·2
Hungary	15,739,000	126·5	14·6	24·8	85·4
France	37,672,000	184·0	31·4	32·8	110·8
Germany	45,234,000	216·8	43·6	32·1	92·0
Holland	4,013,000	315·0	71·2	46·7	60·2
Belgium	5,520,000	487·0	70·0	51·6	32·1
Sweden	4,643,000	27·2	8·5	4·9	8·3
Italy	28,460,000	257·3	16·9	21·8	77·7

One further series of contrasts of wheat, barley, and potato yields I may give in the following table. The figures are not now quoted for the first time, but it will be observed that to confirm the general accuracy of our own often asserted pre-eminence, I collect the separate estimates of no less than four independent observations in the case of wheat, and two or three for other produce, relying on the volume of international statistics (17) published in France in 1876, our own official records, the figures of Dr. Broch (39), and the careful calculations of our distinguished countryman and professor of rural economy at Oxford, Dr. Gilbert (40).

Countries.	Yield of Wheat per Acre.				Yield of Barley per Acre.			Yield of Potatoes.	
	Statistique Internationale, 1876.	English Agricultural Returns, 1885.	Dr. Gilbert, 1885.	Dr. O. I. Broch. 1885.	Statistique Internationale, 1876.	English Agricultural Returns, 1876 and 1885.	Dr O I. Broch 1885.	English Agricultural Returns.	Dr. O. I. Broch, 1886.
	Bshl.	Bshl.	Bshl.	Bshl.	Bshl.	Bshl.	Bshl.	Bshl.	Bshl.
United Kingdom	—	28·8	28·0	35·2	—	34·1	37·8	176·0	—
England		28·9	—	—	37·3	34·4	—	252·0	—
Wales	28·2	21·5	—	—		27·8	—	216·0	—
Scotland		32·9	—	—		34·8	—	232·0	—
Ireland	22·0	—	—	—	34·7	35·7	—	132·0	—
Austria	15·0	15·7	16·0	15·5	16·7	13·5	16·8	109·4	180·0
Hungary	12·0	11·5	13·1	11·7	13·6	13·6	16·0	38·1	106·8
France	16·5	15·3	16·0	16·0	19·9	18·7	19·5	113·9	101·7
Germany	—	18·9	18·7	18·7	—	—	23·6	—	121·1
Holland	23·8	21·4	23·4	22·7	40·3	41·9	36·6	172·8	177·1
Belgium	26·7	25·9	22·7	23·8	33·9	34·9	34·6	—	164·1
Sweden	—	—	19·8	19·9	—	—	33·5	123·7	121·1
Italy	—	11·9	12·3	12·0	—	—	15·3	—	164·0

I hope I have, in the course of this widely ranging, and, I fear, too discursive paper, on the size and distribution of holdings, indicated some of the varied features of English and continental farm systems, and drawn attention to some of the conditions which determine the predominance of large or small farms. The small holdings of the continent have procured no immunity from agricultural depression. In England it has been shown that the depopulation of rural districts cannot be connected with a dearth of small farms, and on the continent of Europe, even where land sub-division is most minute, a like process is attracting the anxious consideration of statesmen and economists. Evidence of this may be sought in the reports from various countries, collected by the French Government, and notably in that of the Vicomte de Beaucaire(41) on German rural migration and German efforts to keep the peasant on the land. Napoleon is said to have rebuked the pedantry of military instructors by declaring that there is "no "natural order of battle." I think my figures suggest that there can be no fixed or standard size of agricultural holdings. Each locality will impose its own conditions. Certainly no investigation of the relative prevalence of small holdings in one country or another will be of avail which misses the cardinal advantages, or disadvantages, not alone of soil or markets, but, as Sir John Lawes has well pointed out,(42) of heat and rainfall. He who could raise our summer temperature thirty degrees might hope to see the hilly vineyards of the South adorning the bare sides of our northern mountains. The small peasant farmer, and the large and scientific agriculturist, have each their place and each their value. But my main conclusion must be that England has plenty of experience of small farming now. There may be room for more in special situations where dairying, market gardening, and fruit growing can be carried on; but no data I have drawn from foreign records can be taken as offering any condemnation of a system of agriculture which, judged by its results, is, in spite of all our present drawbacks, second to none in its aggregate productive capacity.

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APPENDIX.

Table I.—*Total Number of Holdings in Counties, and Mean Size in* 1885, 1875, *and* 1872.

Counties.	Holdings of all Classes.		Average Size of each Holding.		
	Number.	Acreage.	1885.	1875.	1872.
I. *Eastern and North-Eastern.*			Acres.	Acres.	Acres.
Cambridge	8,243	487,651	59·2	61	60
Suffolk	9,357	782,019	83·6	72	72
Essex	9,096	835,968	91·9	88	83
Herts	4,280	341,840	79·9	80	71
Beds	3,981	260,043	65·3	63	61
Hunts	3,183	210,704	66·2	69	66
Norfolk	16,401	1,091,123	66·5	56	54
Lincoln	26,145	1,510,825	57·8	57	56
York, East Riding	8,127	662,622	81·5	78	77
	88,813	6,182,795	69·6	—	—
II. *S.-Eastern and East Midland.*					
Kent	10,970	753,812	68·7	63	64
Surrey	5,687	300,549	52·8	53	52
Sussex	8,942	681,474	76·2	71	74
Hants	8,924	711,723	79·8	80	75
Berks	4,071	377,554	92·7	87	83
Notts	8,265	455,085	55·1	53	52
Leicester	8,241	473,947	57·5	55	53
Rutland	1,163	86,476	74·3	63	55
Northampton	6,923	559,478	80·8	74	75
Warwick	7,604	497,004	65·4	64	60
Oxford	4,605	417,907	90·8	91	85
Bucks	5,277	408,501	77·4	70	71
Middlesex	2,798	114,805	41·0	38	39
	83,470	5,838,315	69·9	—	—
III. *W. Midland and S.-Western.*					
Shropshire	12,504	716,722	57·3	60	58
Worcester	8,391	403,213	48·1	47	49
Hereford	7,187	446,829	62·2	58	58
Gloucester	11,572	659,297	56·9	55	56
Wilts	7,558	757,313	100·2	95	91
Monmouth	5,248	243,836	46·5	48	47
Somerset	18,193	867.642	47·7	47	46
Dorset	5,646	491,208	87·0	87	86
Devon	18,574	1,193,432	64·3	58	55
Cornwall	14,114	583,460	41·3	38	37
	108,987	6,362,952	58·4	—	—
IV. *Northern and N.-Western.*					
Northumberland	5,968	714,518	119·7	122	121
Durham	6,580	423,722	64·4	63	62
York, North Riding	14,547	854,803	58·8	55	54
York, West Riding	31,322	1,212,746	38·7	37	37
Cumberland	7,970	579,426	72·7	69	69
Westmoreland	3,694	250,482	67·8	66	62
Lancashire	21,843	810,417	37·1	34	32
Cheshire	14,290	541,172	37·9	37	38
Derby	13,287	515,069	38·8	37	36
Stafford	14,179	605,122	42·6	42	41
	133,680	6,507.477	48·7	—	—

TABLE II.—*Holdings arranged in Classes and Divisions.*

(A) *Holdings under Fifty Acres.*

Divisions.	Quarter of an Acre, but under 1 Acre.		1 to 5 Acres.		5 to 20 Acres.		20 to 50 Acres.	
	Number.	Acreage.	Number.	Acreage.	Number.	Acreage.	Number.	Acreage.
I. E. and N.-Eastern....	6,098	2,768	23,994	65,340	21,432	233,381	11,150	372,441
II. S.-E. and E. Midland	2,898	1,503	20,944	57,722	21,371	238,106	11,720	388,704
III. W. Midland and S.W.	7,823	3,661	28,779	76,908	26,315	291,344	14,395	482,344
IV. Northern and N.-W.	4,250	2,056	29,512	86,556	40,167	456,832	23,881	798,881
England	21,069	9 988	103,229	286,526	109,285	1,219,663	61,146	2,042,370
Wales	1,083	530	11,044	34,532	17,389	200,169	12,326	420,482
Scotland	1,360	677	21,463	68,619	22,132	236,995	10,677	361,675
Great Britain........	23,512	11,195	135,736	389,677	148,806	1,656,827	84,149	2,824,527

(B) *Holdings between Fifty and Five Hundred Acres.*

Divisions.	50 to 100 Acres.		100 to 300 Acres.		300 to 500 Acres.	
	Number.	Acreage.	Number.	Acreage.	Number.	Acreage.
I. Eastern and North-Eastern..	8,231	601,178	12,561	2,269,290	3,555	1,360,120
II. S.-Eastern and E. Midland..	8,662	633,930	13,445	2,386,333	3,165	1,197,707
III. W. Midland and S.-Western	11,563	853,592	16,349	2,838,400	2,700	1,012,013
IV. Northern and N.-Western...	16,437	1,196,650	16,825	2,791,965	2,032	758,882
England	44,893	3,285,350	59,180	10,285,988	11,452	4,328,722
Wales	10,044	735,671	7,844	1,233,374	389	143,623
Scotland	9,778	725,499	12,549	2,139,133	2,034	763,823
Great Britain........	64,715	4,746,520	79,573	13,658,495	13,875	5,241,168

(C) *Holdings of over Five Hundred Acres.*

Divisions.	500 to 1,000 Acres.		Above 1,000 Acres.	
	Number.	Acreage.	Number.	Acreage.
I. Eastern and North-Eastern	1,605	1,045,037	187	233,240
II. South-Eastern and East Midland....	1,109	725,404	156	208,906
III. West Midland and South-Western	908	603,684	155	201,006
IV. Northern and North-Western	509	323,669	67	91,986
England	4,131	2,697,794	565	735,138
Wales	63	39,793	8	10,373
Scotland	632	409,641	90	137,104
Great Britain........................	4,826	3,147,228	663	882,615

TABLE III.—*Holdings arranged in Classes in Counties.* (A) *Holdings under Fifty Acres.*

Counties.	Quarter of an Acre, but under 1 Acre.		1 to 5 Acres.		5 to 20 Acres.		Above 20 to 50 Acres.	
	Number.	Acreage.	Number.	Acreage.	Number.	Acreage.	Number.	Acreage.
I. *E. and N.-Eastern.*								
Cambridge	566	270	2,490	6,709	2,202	24,595	1,056	35,041
Suffolk	452	230	2,333	6,111	1,661	17,962	1,161	40,596
Essex	280	166	2,086	5,573	1,715	18,587	1,214	41,787
Herts	222	119	1,275	3,369	899	9,949	454	15,269
Beds	132	70	1,316	3,616	1,012	10,863	437	14,167
Hunts	244	99	926	2,374	797	8,636	349	11,605
Norfolk	2,410	1,006	4,334	10,986	3,410	37,842	2,028	67,450
Lincoln	1,152	529	7,219	21,039	7,954	85,678	3,578	117,288
York, East Riding	640	279	2,015	5,563	1,782	19,269	873	29,238
	6,098	2,768	23,994	65,340	21,432	233,381	11,150	372,441
II. *S.-E. and E. Mid.*								
Kent	292	150	2,384	6,781	2,844	31,595	1,723	56,273
Surrey	254	132	1,699	4,657	1,549	17,283	720	23,621
Sussex	323	165	2,093	5,942	2,078	23,262	1,324	44,772
Hants	486	262	2,699	7,015	2,197	23,909	1,002	32,972
Berks	126	67	1,113	2,970	936	10,363	509	16,981
Notts	255	131	2,071	5,885	2,562	28,051	1,185	38,425
Leicester	137	72	1,752	5,142	2,403	27,387	1,407	46,685
Rutland	12	7	234	662	304	3,628	209	7,031
Northampton	252	125	1,564	4,281	1,645	18,277	973	33,194
Warwick	198	102	1,893	5,249	1,982	22,205	1,103	36,750
Oxford	215	111	1,174	3,050	953	10,508	542	17,876
Bucks	259	132	1,427	3,724	1,068	12,079	612	20,643
Middlesex	89	47	841	2,364	850	9,559	411	13,481
	2,898	1,503	20,944	57,722	21,371	238,106	11,720	388,704
III. *W. Mid. and S.-W.*								
Shropshire	788	355	3,491	10,217	3,513	37,197	1,308	42,907
Worcester	614	285	2,596	6,944	2,044	22,101	1,047	35,133
Hereford	440	224	1,971	5,222	1,744	18,868	820	27,119
Gloucester	1,254	576	3,659	9,056	2,464	27,131	1,258	41,467
Wilts	527	248	2,069	5,146	1,697	18,851	833	27,604
Monmouth	343	144	1,086	3,063	1,398	16,277	925	31,050
Somerset	2,173	1,007	4,949	12,570	4,095	45,447	2,354	78,036
Dorset	397	190	1,533	3,994	1,297	14,180	651	22,261
Devon	956	459	3,762	9,974	3,927	44,959	2,696	92,274
Cornwall	331	173	3,663	10,722	4,136	46,333	2,503	84,493
	7,823	3,661	28,779	76,908	26,315	291,344	14,395	482,344
IV. *N. and N.-Western.*								
Northumberland	162	81	966	3,145	1,413	15,016	780	25,796
Durham	102	56	1,170	3,574	1,967	22,138	932	30,859
York, North Riding	336	171	3,610	10,773	3,761	41,053	1,970	67,315
York, West Riding	1,134	573	7,330	21,054	11,048	126,910	5,488	178,808
Cumberland	164	77	1,315	3,744	1,490	16,707	1,379	48,854
Westmoreland	59	26	495	1,457	792	9,421	819	29,291
Lancashire	405	209	3,625	10,744	7,044	84,321	5,836	195,998
Cheshire	404	200	4,236	12,143	4,103	45,439	2,193	73,564
Derby	322	173	3,205	9,577	4,408	49,837	2,420	79,872
Stafford	1,162	490	3,560	10,345	4,141	45,990	2,061	68,524
	4,250	2,056	29,512	86,556	40,167	456,832	23,881	798,881

TABLE III *Contd.*—(B) *Holdings between Fifty and Five Hundred Acres.*

Counties.	50 to 100 Acres.		100 to 300 Acres.		300 to 500 Acres.	
	Number.	Acreage.	Number.	Acreage.	Number.	Acreage.
I. *E. and N.-Eastern.*						
Cambridge	610	43,507	899	164,079	269	103,771
Suffolk	1,278	94,994	1,872	330,133	409	154,590
Essex	1,101	81,853	2,000	363,178	521	198,609
Herts	366	27,265	729	133,902	254	96,852
Beds	290	21,078	556	104,975	184	69,644
Hunts	225	16,332	448	84,607	147	56,526
Norfolk	1,385	100,255	1,860	335,929	530	203,136
Lincoln	2,205	158,383	2,740	486,726	840	321,492
York, East Riding	771	57,511	1,457	265,761	401	155,500
	8,231	601,178	12,561	2,269,290	3,555	1,360,120
II. *S.-E. and E. Mid.*						
Kent	1,320	96,159	1,898	325,326	384	146,522
Surrey	528	38,824	751	130,921	135	49,848
Sussex	1,132	83,295	1,487	251,328	302	116,222
Hants	732	54,267	1,100	198,595	402	156,022
Berks	353	26,016	646	122,243	247	94,013
Notts	793	56,800	1,107	190,987	218	81,615
Leicester	991	71,960	1,342	234,089	170	62,681
Rutland	145	10,549	195	34,702	50	19,640
Northampton	677	48,943	1,339	246,792	374	138,516
Warwick	781	57,175	1,323	237,904	271	100,844
Oxford	452	33,400	850	157,875	312	118,910
Bucks	497	37,287	1,110	205,565	258	97,386
Middlesex	261	19,255	297	50,006	42	15,488
	8,662	633,930	13,445	2,386,333	3,165	1,197,707
III. *W. Mid. and S.-W.*						
Shropshire	966	71,946	1,946	360,218	448	166,045
Worcester	768	56,585	1,125	199,924	166	61,979
Hereford	693	50,766	1,219	223,254	257	95,074
Gloucester	950	69.852	1,488	262,214	310	118,714
Wilts	596	44,186	1,109	198,236	334	128,524
Monmouth	728	53,258	714	116,664	43	15,763
Somerset	1,760	129,214	2,408	412,097	384	142,587
Dorset	502	37,131	785	140,207	259	101,458
Devon	2,865	212,085	3,944	665,770	377	137,028
Cornwall	1,735	128,569	1,611	259,816	122	44,841
	11,563	853,592	16,349	2,838,400	2,700	1,012,013
IV. *Northern and N.-W.*						
Northumberland	526	37,897	1,347	252,377	527	200,327
Durham	883	65,124	1,359	231,932	135	49,603
York, North Riding	1,875	138,832	2,655	452,827	277	102,740
York, West Riding	2,922	212,844	2,969	489,327	360	133,537
Cumberland	1,672	124,710	1,735	281,030	167	62,572
Westmoreland	790	57,830	641	104,617	64	23,689
Lancashire	3,197	227,369	1,632	247,045	88	33,607
Cheshire	1,683	123,095	1,590	251,624	70	25,994
Derby	1,479	106,544	1,320	213,529	115	42,018
Stafford	1,410	102,405	1,577	267,657	229	84,795
	16,437	1,196,650	16,825	2,791,965	2,032	758,882

TABLE III *Contd.*—(C) *Holdings of over Five Hundred Acres.*

Counties.	500 to 1,000 Acres.		Above 1,000 Acres.	
	Number.	Acreage.	Number.	Acreage.
I. *Eastern and North-Eastern.*				
Cambridge	135	89,301	16	20,378
Suffolk	174	115,089	17	22,314
Essex	160	103,457	19	22,758
Herts	75	47,749	6	7,366
Beds	50	31,220	4	4,410
Hunts	47	30,525	—	—
Norfolk	380	252,603	64	81,916
Lincoln	414	266,330	43	53,360
York, East Riding	170	108,763	18	20,738
	1,605	1,045,037	187	233,240
II. *S.-Eastn. and E. Midland.*				
Kent	111	71,771	14	19,235
Surrey	47	30,618	4	4,645
Sussex	172	118,732	31	37,756
Hants	254	170,368	52	68,313
Berks	125	83,516	16	21,385
Notts	68	41,070	6	12,121
Leicester	38	24,386	1	1,545
Rutland	12	7,780	2	2,477
Northampton	90	56,852	9	12,498
Warwick	50	31,181	3	5,594
Oxford	94	59,763	13	16,414
Bucks	41	24,762	5	6,923
Middlesex	7	4,605	—	—
	1,109	725,404	156	208,906
III. *W. Midland and S.-W.*				
Shropshire	43	26,707	1	1,130
Worcester	29	17,969	2	2,293
Hereford	43	26,302	—	—
Gloucester	177	115,126	12	15,161
Wilts	287	196,813	106	137,705
Monmouth	10	6,197	1	1,420
Somerset	66	39,766	4	6,918
Dorset	196	138,775	26	33,012
Devon	46	29,785	1	1,098
Cornwall	11	6,244	2	2,269
	908	603,684	155	201,006
IV. *Northern and N.-Western.*				
Northumberland	213	138,079	34	41,800
Durham	30	18,238	2	2,198
York, North Riding	58	34,986	5	6,106
York, West Riding	66	43,770	5	5,923
Cumberland	39	23,816	9	17,916
Westmoreland	31	20,295	3	3,856
Lancashire	15	8,902	1	2,222
Cheshire	8	4,718	3	4,395
Derby	17	12,105	1	1,414
Stafford	32	18,760	4	6,156
	509	323,669	67	91,986

TABLE IV.—*Cattle in English Counties at Two Periods,* 1872 *and* 1885.

Counties.	Cattle to every 100 Acres.		Counties.	Cattle to every 100 Acres.	
	1872.	1885.		1872.	1885.
I. *Eastn. and N.-Eastern.*			III. *West Midland and South-Western.*		
Cambridge	8·9	10·4			
Suffolk	8·9	8·9	Shropshire	18·8	22·7
Essex	8·7	10·3	Worcester	13·0	17·9
Herts	8·2	11·1	Hereford	16·1	22·5
Beds	11·4	14·4	Gloucester	16·8	19·7
Hunts	11·5	14·3	Wilts	11·4	14·3
Norfolk	10·6	11·2	Monmouth	17·3	20·7
Lincoln	13·4	15·3	Somerset	23·7	27·3
York, E. R.	11·9	13·3	Dorset	15·0	18·5
II. *S.-E. and E. Midland.*			Devon	18·3	21·2
Kent	9·6	10·2	Cornwall	26·5	30·7
Surrey	13·3	16·5	IV. *Northern and North-Western.*		
Sussex	14·3	16·6			
Hants	8·0	11·5	Northumberland	14·2	15·0
Berks	8·6	12·1	Durham	14·4	16·4
Notts	15·6	19·3	York, N.R.	18·6	20·0
Leicester	26·9	31·5	York, W.R.	20·1	22·6
Rutland	18·5	23·0	Cumberland	23·4	24·1
Northampton	19·1	23·2	Westmorland	26·0	26·2
Warwick	17·4	22·8	Lancashire	30·6	29·4
Oxford	11·4	14·3	Cheshire	30·4	31·6
Bucks	15·1	18·8	Derby	24·5	31·6
Middlesex	19·6	21·4	Stafford	22·4	25·9

TABLE V.—*Live Stock in* 1885, *in Two Counties, the West Riding of Yorkshire and Essex, compared in Groups of Holdings.*

Holdings.	Horses.	Cattle.	Sheep.	Pigs.	Cultivated Acreage.	Horses per 100 Acres.	Cattle per 100 Acres.	Sheep per 100 Acres.
West Riding.					Acres.			
1 to 5 acres	1,406	6,111	4,527	6,877	21,054	6·6	29·0	21·5
5 „ 20 „	5,746	42,938	21,398	17,693	126,910	4·5	33 0	16·9
20 „ 50 „	8,247	51,008	61,756	13,852	178,808	4·6	28·5	34·5
50 „ 100 „	9,088	49,698	111,109	10,249	212,844	4·3	23·3	52·2
100 „ 300 „	20,301	92,828	298,775	18,223	489,327	4·2	18·9	61·0
300 „ 500 „	5,064	23,129	97,495	4,638	133,537	3·7	17·3	73·0
500 „ 1,000 „	1,218	6,490	32,228	1,050	43,770	2·8	14·7	73·6
Above 1,000 acres	153	871	2,953	248	5,923	2·6	14·5	49·8
	51,223	237,073	630,241	72,830	1,212,173	4·2	19·5	51·9
Essex.								
1 to 5 acres	442	770	894	4,176	5,573	7·9	13·8	16·0
5 „ 20 „	975	2,731	1,701	6,172	18,587	5·2	14·6	9·2
20 „ 50 „	2,335	4,718	5,753	8,346	41,787	5·6	11·3	13·8
50 „ 100 „	4,593	8,823	17,016	13,652	81,853	5·6	10·8	20·8
100 „ 300 „	18,247	36,279	130,168	40,058	363,178	5·0	10·0	35·8
300 „ 500 „	8,826	20,684	109,172	18,018	198,609	4·4	10·4	54·9
500 „ 1,000 „	4,325	10,325	60,668	7,408	103,457	4·2	10·0	58·6
Above 1,000 acres	1,075	1,822	15,404	1,478	22,758	4·7	8·0	67·7
	40,818	86,152	340,776	99,308	835,802	4·8	10·3	40·8

TABLE VI.—*Allotments of all Classes in England, other than Railway Allotments, arranged in Counties.*

Counties.	Detached	Attached.	Potato Plots.	Cow Runs.		Total.
				General.	Definite.	
I. *Eastern and North-Eastern.*						
Cambridge	12,018	5,266	2,802	88	2	20,176
Suffolk	16,012	9,920	3,391	18	112	29,453
Essex	12,582	5,801	2,216	3	2	20,604
Herts	8,445	2,643	458	12	25	11,583
Beds	14,346	2,516	1,313	32	53	18,260
Hunts	5,857	1,104	169	3	3	7,136
Norfolk	10,101	15,294	3,051	132	21	28,599
Lincoln	13,707	15,251	3,945	478	185	33,566
York, East Riding	5,600	5,795	1,799	333	142	13,669
	98,668	63,590	19,144	1,099	545	183,046
II. *S.-Eastern and E. Midland.*						
Kent	6,932	5,519	1,666	36	30	14,183
Surrey	3,329	4,613	150	4	2	8,098
Sussex	5,120	8,134	1,025	13	22	14,314
Hants	9,446	9,545	4,499	55	79	23,624
Berks	8,536	4,708	2,020	5	61	15,330
Notts	15,637	5,209	694	28	24	21,592
Leicester	19,064	2,439	1,672	123	154	23,452
Rutland	1,958	563	124	1	—	2,646
Northampton	20,627	4,397	2,691	48	75	27,838
Warwick	18,360	4,302	1,061	9	40	23,772
Oxford	14,706	2,512	1,061	—	—	18,279
Bucks	13,081	3,435	1,840	26	78	18,460
Middlesex	1,851	492	66	—	—	2,409
	138,647	55,868	18,569	348	565	213,997
III. *W. Midland and S.-Western.*						
Shropshire	2,570	11,611	2,045	47	44	16,317
Worcester	8,180	6,722	704	5	6	15,617
Hereford	2,229	6,346	2,002	40	128	10,745
Gloucester	12,415	9,420	3,697	16	128	25,676
Wilts	22,071	9,651	4,293	17	17	36,049
Monmouth	929	1,931	814	27	19	3,720
Somerset	15,535	9,569	3,997	117	120	29,338
Dorset	9,601	5,340	4,095	30	44	19,110
Devon	11,030	7,846	6,083	135	152	25,246
Cornwall	3,988	3,245	2,930	85	152	10,400
	88,548	71,681	30,660	519	810	192,218
IV. *Northern and N.-Western.*						
Northumberland	5,391	2,838	3,165	880	46	12,320
Durham	4,703	2,576	693	91	63	8,126
York, North Riding	8,571	3,778	2,473	407	732	15,961
York, West Riding	12,083	5,796	1,577	253	131	19,840
Cumberland	1,089	1,668	563	202	12	3,534
Westmoreland	405	420	123	11	10	969
Lancashire	4,334	4,985	586	48	37	9,990
Cheshire	3,536	6,289	632	203	201	10,861
Derby	7,816	4,053	736	56	111	12,772
Stafford	7,258	6,774	1,124	18	16	15,190
	55,186	39,117	11,672	2,169	1,359	109,563

FRANCE.

TABLE VII.—*Departments having the Largest Average Sized Holdings.*

Departments.	Average Size of Holdings, 1873.	Average Yield per Hectare of Wheat.	Cattle, per Square Kilometre.
	Hectares.	Hectolitres.	No.
Indre et Loire	12·1	15·5	17·73
Loire Inférieure	12·1	16·0	44·49
Seine et Marne	12·5	22·7	15·81
Vienne	12·5	15·5	13·67
Landes	12·6	10·0	9·65
Oise	13·0	23·9	18·60
Marne	13·2	17·6	14·90
Vendée	13·3	14·9	59·11
Allier	13·4	17·0	28·61
Sèvres (Deux)	14·2	16·0	28·57
Côte d'Or	15·0	15·4	16·37
Indre	16·0	14·2	17·79
Somme	16·1	19·3	21·33
Aisne	17·7	23·5	16·64
Cher	17·8	14·9	18·16

TABLE VIII.—*Departments having the Smallest Average Sized Holdings.*

Departments.	Average Size of Holding, 1873.	Average Yield per Hectare of Wheat.	Cattle, per Square Kilometre, 1862.
	Hectares.	Hectolitres.	No.
Alpes Maritimes	3·1	7·3	4·48
Gard	3·5	11·5	1·08
Savoie	3·5	11·2	24·41
,, (Haute)	3·7	15·0	30·48
Ardèche	3·8	8·0	13·57
Vaucluse	3·9	10·9	0·34
Var	4·1	8·0	0·58
Rhône	4·6	15·7	30·25
Gironde	4·9	20·0	13·63
Pyrénées (Hautes)	5·1	15·0	33·05
,, (Basses)	5·5	14·0	26·50
Tarn et Garonne	5·6	12·7	21·53
Jura	5·8	14·0	34·06
Aveyron	5·9	11·8	14·93
Isére	5·9	15·2	21·20

GERMANY.

TABLE IX (A).—*Agricultural Holdings of the German Empire Classified according to Size.*

Holdings in Groups.	Total Number of Holdings.	Number Cultivated.			
		By Owners.	As to more than Half by Owners.	As to more than Half by Tenants.	Wholly by Tenants.
Under 2 ares	66,143	38,797	1,118	893	25,335
2 ares to 5 ares	195,298	94,165	7,428	2,830	90,875
5 ,, 20 ,,	656,193	312,155	57,112	18,920	268,006
20 ,, 1 hectare	1,405,682	706,144	232,992	158,782	307,764
1 hectare to 2 ,,	738,515	381,467	103,336	181,742	71,970
2 ,, 5 ,,	981,407	541,800	92,719	311,904	34,984
5 ,, 10 ,,	554,174	354,230	30,505	159,937	9,502
10 ,, 20 ,,	372,431	281,080	12,425	72,605	6,321
20 ,, 50 ,,	239,887	196,176	5,990	31,417	6,304
50 ,, 100 ,,	41,623	31,628	1,839	5,254	2,902
100 ,, 200 ,,	11,033	7,002	767	1,276	1,988
200 ,, 500 ,,	9,814	6,169	506	777	2,362
500 ,, 1,000 ,,	3,629	2,282	182	390	775
1,000 ,, and above........	515	350	38	78	49
German Empire	5,276,344	2,953,445	546,957	946,805	829,137

TABLE IX (B).—*Percentage of Holdings in each Class.*

Holdings in Groups.	Total.	Cultivated.			
		Wholly by Owners.	As to more than Half by Owners.	As to more than Half by Tenants.	Wholly by Tenants.
Under 2 ares	1·3	58·7	1·7	1·3	38·3
2 ares to 5 ares	3·7	48·2	3·8	1·5	46·5
5 ,, 20 ,,	12·4	47·6	8·7	2·9	40·8
20 ,, 1 hectare	26·6	50·2	16·6	11·3	21·9
1 hectare to 2 ,,	14·0	51·7	14·0	24·6	9·7
2 ,, 5 ,,	18·6	55·2	9·4	31·8	3·6
5 ,, 10 ,,	10·5	63·9	5·5	28·9	1·7
10 ,, 20 ,,	7·1	75·5	3·3	19·5	1·7
20 ,, 50 ,,	4·5	81·8	2·5	13·1	2·6
50 ,, 100 ,,	0·8	76·0	4·4	12·6	7·0
100 ,, 200 ,,	0·2	63·5	6·9	11·6	18·0
200 ,, 500 ,,	0·2	62·9	5·1	7·9	24·1
500 ,, 1,000 ,,	0·1	62·9	5·0	10·7	21·4
1,000 ,, and above	0·0	68·0	7·4	15·1	9·5
Total	100·0	56·0	10·4	17·9	15·7

GERMANY—*Contd.*

TABLE IX (C).—*Area of Holdings in each Class.*

Holdings in Groups.	Average Size of Holding.		Total Area in each Class.	Of which		
	According to Cultivated Area.	According to Total Area.		Cultivated Area, *i.e.*, Arable Land, Garden Land, Meadow Land, Cultivated Pastures, Orchards, and Vineyards.	Woodland.	Other Land.
	hect.	hect.	hect.	hect.	hect.	hect.
Under 2 ares	0·01	0·03	1,960	658	453	849
2 ares to 5 ares	0·03	0·05	10,526	5,994	1,428	3,104
5 ,, 20 ,,	0·11	0·14	93,504	72,860	8,301	12,343
20 ,, 1 hectare	0·50	0·58	817,216	698,446	51,721	67,049
1 hectare to 2 ,,	1·4	1·7	1,236,152	1,047,980	88,501	99,671
2 ,, 5 ,,	3·3	3·9	3,832,902	3,190,203	322,410	320,289
5 ,, 10 ,,	7·1	8·6	4,780,980	3,906,947	492,207	381,826
10 ,, 20 ,,	14·1	18·0	6,711,037	5,251,451	860,414	599,172
20 ,, 50 ,,	29·9	37·9	9,080,545	7,176,129	1,020,633	883,783
50 ,, 100 ,,	65·6	80·1	3,334,918	2,732,041	326,606	276,271
100 ,, 200 ,,	137·9	174·7	1,927,090	1,521,191	265,978	139,921
200 ,, 500 ,,	322·0	420·5	4,126,325	3,159,900	673,730	292,695
500 ,, 1,000 ,,	660·5	882·0	3,200,642	2,397,071	590,149	213,422
1,000 ,, and above	1,375·0	1,990·1	1,024,884	708,101	249,444	67,339
	6·0	7·6	40,178,681	31,868,972	4,951,975	3,357,734

TABLE IX (D).—*Percentage of Areas.*

Holdings in Groups.	In each Class, according to Size.	Cultivated.	Woodland.	Other Land.	Land Held by Tenants.
Under 2 ares	0·00	33·6	23·1	43·3	20·8
2 ares to 5 ares	0·02	56·9	13·6	29·5	32·2
5 ,, 20 ,,	0·2	77·9	8·9	13·2	40·4
20 ,, 1 hectare	2·2	85·5	6·3	8·2	32·7
1 hectare to 2 ,,	3·3	84·8	7·1	8·1	23·4
2 ,, 5 ,,	10·0	83·2	8·4	8·4	14·6
5 ,, 10 ,,	12·3	81·7	10·3	8·0	9·2
10 ,, 20 ,,	16·5	78·3	12 8	8·9	5·9
20 ,, 50 ,,	22·5	79·0	11·3	9·7	5·5
50 ,, 100 ,,	8·6	81·9	9·8	8·3	11·4
100 ,, 200 ,,	4·8	78·9	13·8	7·3	22 7
200 ,, 500 ,,	9·9	76·6	16·3	7·1	25·1
500 ,, 1,000 ,,	7·5	74·9	18·4	6·7	21·6
1,000 ,, and above	2·2	69·1	24·3	6·6	13·3
	100·0	79·3	12·3	8·4	12·9

BELGIUM.

TABLE X (A).—*Number of Holdings in Belgium at Three Periods.*

Holdings in Groups.	1846.	1866.	1880.	Increase or Decrease, 1866-80.
50 ares and under	247,551	312,290	472,471	+ 160,184
51 „ to 1 hectare	70,413	108,094	121,905	+ 13,811
1 hectare to 2 hectares	82,550	107,531	116,187	+ 8,656
2 „ 3 „	42,355	55,701	56,140	+ 439
3 „ 4 „	24,329	32,987	32,323	− 664
4 „ 5 „	16,699	23,165	21,408	− 1,757
5 „ 10 „	42,737	51,650	48,390	− 3,260
10 „ 20 „	26,585	30,996	25,983	− 5,013
20 „ 30 „	9,056	9,967	7,749	− 2,218
30 „ 40 „	3,881	3,982	3,023	− 959
40 „ 50 „	2,061	2,117	1,414	− 703
50 „ and above	4,333	5,527	3,403	− 2,124
Total	572,550	744,007	910,396	+ 183,087
				− 16,698

TABLE X (B).—*Belgian Holdings Cultivated by Owners and Tenants.*

Holdings in Groups.	Owners.		Tenants.	
	Wholly.	More than Half.	Wholly.	More than Half.
50 ares and under	129,259	12,251	289,251	41,710
51 „ to 1 hectare	26,159	11,607	52,073	32,066
1 hectare to 2 hectares	22,361	16,507	39,988	37,331
2 „ 3 „	10,473	10,011	17,708	17,948
3 „ 4 „	6,176	6,175	10,074	9,898
4 „ 5 „	4,229	4,228	6,321	6,630
5 „ 10 „	9,612	9,694	14,317	14,767
10 „ 20 „	5,609	4,398	8,897	7,079
20 „ 30 „	1,574	924	3,273	1,978
30 „ 40 „	619	271	1,299	834
40 „ 50 „	250	122	653	389
50 „ and above	799	216	1,674	714
	217,120	76,404	445,528	471,344

Table XI.—*Area and Number of Belgian Holdings in Provinces, their Occupation by Owners or Tenants, and the Proportion of Agricultural Workers.*

Provinces.	Surface.	1880.		Percentage Occupied by	
		Number of Holdings.	Extent of Holdings.	Owners.	Tenants.
	Hectares.		Hectares.		
Anvers	283,180	64,655	156,515	41	59
Brabant	328,290	126,526	271,248	29	71
Flandre Occidentale	323,481	117,754	281,641	16	84
Flandre Orientale	300,020	139,321	251,879	26	74
Hainaut	372,166	189,547	293,241	35	65
Liége	289,486	89,977	188,672	39	61
Limbourg	241,230	51,942	134,151	58	42
Luxembourg	441,836	56,281	178,222	65	35
Namur	366,026	74,393	228,001	38	62
Total	2,945,715	910,396	1,983,570	36	64

Provinces.	Proportion of Agricultural Workers to 100 Hectares Arable Land.			Proportion of Women so Engaged to each 100 Men.	
	Of the Family.	Hired.	Total.	In 1846.	In 1880.
Anvers	63	13	76	84	82
Brabant	62	11	73	78	85
Flandre Occidentale	49	15	74	56	68
Flandre Orientale	80	17	97	57	71
Hainaut	38	8	46	57	82
Liége	34	8	42	69	94
Limbourg	51	11	62	61	78
Luxembourg	43	5	48	71	89
Namur	25	6	31	57	79
Total	49	11	60	65	79

DISCUSSION *on* MAJOR CRAIGIE'S PAPER.

BEFORE the paper was read—

The CHAIRMAN, Lionel L. Cohen, Esq., M.P., said he had the pleasure to announce, and the Society was greatly indebted for the announcement to his friend Sir Rawson Rawson, that the Society was now a chartered society, and they were entitled to call themselves the Royal Statistical Society of Great Britain. He was sure the members would be gratified at this announcement he was empowered to make, that they had now become the Royal Statistical Society, and were entitled to put that heading to all their public acts.

(The Paper was then read.)

Mr. S. B. L. DRUCE said that they owed a very deep debt of gratitude to Major Craigie, for the very elaborate and detailed statistics that he had placed before them on this very intricate subject. He had himself at different times devoted some attention to the subject of large and small holdings in Great Britain, and the conclusions to which the author had arrived were so entirely in unison with his own, that it was almost impossible for him to criticise the paper. In these days, when there was so much talk of the value of small ownerships, and small farms, and so much said on so many platforms to the effect that the system of agriculture in England was entirely that of large farms, especial stress should be laid upon the fact, which the author had brought out so clearly, that the average size of a holding in England was 60 acres. When he (the speaker) first studied this subject some few years ago, upon the statistics available before the 1886 returns, he was astonished to find that the average at that time was 57 acres, and he was even more astonished now to find, considering the bad times, from which all who were connected with agriculture had suffered during the last ten years, that, as the author had demonstrated, the tendency of English farms during that period had been to increase in size rather than to diminish. That was, he thought, quite contrary to the generally received opinion of land agents, farmers, and other persons, who were doubtless, in a general way, well versed in rural affairs, but who had not studied them from a statistical point of view. Here came out the great value of a statistical society, because it corrected those ideas which otherwise became prevalent and took hold of the public mind. They had of late years heard a great deal about allotments, and there had been, he thought, much confusion between small farms or ownerships, and allotments properly so called. By an "allotment" he understood a small piece of land which could be cultivated by a labourer or other person in his spare hours, and which was in fact, in most instances, hardly more than a garden. He had stated in his report to the Royal Commission, with reference to the fifteen counties entrusted to him to report upon, not the actual number of allotments in those counties, but the fact whether allotments were general, few, or otherwise; and those statements very much tallied with the results which appeared in the last allotment returns to which the author alluded. Allotments were more numerous in the midland, or rather in the eastern midland counties; but that fact appeared to him to arise not so much from the geographical position of those counties, as from the fact that the agriculture in them was strictly arable, and not pasture. Where the land was mainly arable, there they would find allotments predominate; where, on the contrary, there was not much arable land, but grass, and hills, they would find very few allotments. That seemed to be the reason of the greater or less number of allotments, and he was inclined to put it on that ground rather than upon the ground of the difference in agricultural wages, as Major Craigie appeared to have done. Looking through the ten counties respectively tabulated by Major Craigie, his (the speaker's) theory of the arable land and pasture would, he ventured to think, hold quite as strongly and as well as that advanced by the author. For instance, in Bedfordshire, which was almost entirely an arable county, they found the greatest number of allotments. Warwickshire, Wiltshire, Bucks, Oxford, Berkshire, and Cambridgeshire were all arable counties, and in them allotments predominated. On the other hand, in Westmoreland, Cumberland, Monmouthshire, Cornwall, and other counties, all of which were pasture or grass counties, they found but few allotments. As the rates of wages given by the author in this table were his (Mr. Druce's), worked out from the reports to the Royal Commission, he wished to state that they were all of them *money wages* and nothing else. They did not by any means represent all that the agricultural labourer received for his labour. On the contrary, he usually received other remuneration in addition. For example, the allotments themselves were, in many instances, given to the labourers free, as appeared from the allotment returns, in which the number of allotments held without payment of any rent appears to be very considerable. Many other allotments also were let at very moderate rents. Other labourers had cottages at moderate rents, and in some instances free. In other parts of the country the old system of the labourers boarding with the bailiff or head man on the farm still prevailed, and in such cases the labourers were allowed (somewhat after the Swedish fashion mentioned by Major Craigie) certain quantities of either corn, potatoes, or bacon, payment in kind in fact, in addition to actual money wages. He wished to point that out for fear that the idea should go forth that those figures represented the whole of the remuneration which the agricultural labourer received. With reference to the class of men who succeeded as peasant proprietors, or small farmers, he thought the author had hit the right nail on the head when he said they must not only be suitable men, but that those men must also have suitable wives. It was really the suitable wife that made the peasant proprietor or small farmer the successful man. If she was able and willing to work, in nine cases out of ten the man would succeed; if she was not, then in nine cases out of ten the man would fail.

Lord Onslow said he had read the paper with great interest. The remarks which the author had made as to the sizes of the holdings in various counties in England were entirely borne out by the facts which had come under his own notice. He observed with very great pleasure that the author agreed with him in the belief that the system of allotments existed in the midland counties already to a very great extent, and there was very little demand for more He quite agreed with what had fallen both from the author and Mr. Druce that the low price of agricultural produce generally had caused a very large number of the small holdings and allotments which were under cultivation at the time when Mr. Druce was acting upon the Agricultural Commission and when the statistics from which Major Craigie drew his inferences were compiled, to be thrown back into the hands of the owners. He was satisfied from what had reached him from a great many sources, that so far from there being any lack of disposition on the part of those who owned land to let it in allotments, or even in small holdings, the landlords were most anxious to have upon their estates holdings of every size and class. It was a well known fact that landlords at the present moment had upon their hands a very large acreage of land which they would only be too pleased to get rid of either in large or small holdings. One point which had not been very clearly brought out in the paper was as to the difference between small holdings of pasture and small holdings of arable land. He should like to have seen a table showing how far the small holdings to which he had alluded were cultivated and arable, and how far they remained as pasture. He believed there was room, certainly in those districts of England in which dairy farming was extensively practised, for a considerable increase of small holdings. It was an acknowledged fact that in England, of all countries, the labourer and the artisan derived less advantages from the milk of cows than was the case in any other country of Europe. He hoped that if there was to be any advance in the direction of cutting up land in small holdings, it would be in the way of providing small holdings of pasture and not small holdings of arable, in order that the children of the artisan and labourer might have that which was most essential for their proper nourishment—a good and proper supply of milk. One point must not be lost sight of, viz., that it was not every man, nor indeed every woman, who was capable of managing a small dairy holding, but in those counties in which dairying was an art, and where it was thoroughly and carefully practised, he felt certain that there would be room, especially in the neighbourhood of large towns, for a considerable extension of the system which had been broadly, and perhaps rather unwisely, called the cow and the three acres.

Mr. W. J. Harris, after remarking on the opportuneness of the paper, said that he believed that the number of small holdings or allotments were still understated by the Government returns. One class of holdings he believed had not been fully taken into account, viz., the potato grounds which farmers gave to their labourers. On one of his farms in Devonshire, employing about sixteen men, at least twelve of the men had land given them for growing potatoes—all his neighbours did the same—the horse labour being done by the farmer, and the labourer simply providing seed potatoes and manure. That was one of the most advantageous modes in which allotments could be given to a labourer, because he received all the advantage of the produce without having to do so much of the work. He did not think these sort of holdings had been included in agricultural returns. (Mr. Druce said he believed these potato grounds were included.) Mr. Harris said that neither himself nor his bailiff had ever been asked any questions about them, and therefore if the returns were made to the Government they must have been guessed at. Since holding land in Devonshire, he had let a good many small enclosures of pasture to the cottagers, and he could thoroughly confirm what had been said by the author and by Lord Onslow, that for the man to prosper he must not only be a man suitable for the work, but he must have a suitable wife as well. No doubt Irish experience went very much against the system of small holdings, but their want of success was owing to the fact that the men had not got the opportunity of earning wages as well. If they could earn the same wages as labourers did even in the poorer parts of England, say 12*s.* to 14*s.* a week, he believed there would be no Irish question at all. The smallest acreage in this country which a man could farm and live upon with a family without wages could not be put at less than forty acres of land, average quality. He had a few farms of that size on which men could and did live; they were thrifty men and lived happily; but if the farms were smaller, he did not believe they could make both ends meet unless they could earn wages besides. It was these men who had suffered less than larger farmers in these times of depression, simply because the fall had only affected the small surplus they had to sell and not what they lived upon. The reason why the small holdings in Belgium were fairly successful was that the whole of Belgium existed over a great coal or iron mine, and the small farmers had other work to do and other wages to earn.

Mr. R. Jasper More, M.P., having made some remarks,

Mr. Stephen Bourne, speaking from his own experience in Jamaica, stated that under the former system of slavery the labourers practically raised all the vegetable food which they consumed, having the run of what was termed the mountain land and so much time apportioned to them which they were expected to employ on that land. When they became freemen the proprietors repudiated the system of giving them the free run of the land, and the result was that many of these men thought it would be a fine thing to become purchasers or renters of small plots, and did so, not using the land as they did when slaves, simply as an adjunct to their ordinary employment, but making its cultivation the main business of their lives. The result had been that the staple productiveness of the country so far as exportation was concerned had most materially decreased, but at the same time there was probably a larger amount of food consumed by the people, and though their position might not be one of rising in the scale of civilisation, they were better fed if not perhaps always better clothed than they were before. The inference he drew was that the provision of a small plot of land as an adjunct to other employment was likely to prove a very valuable addition to the wealth of the country, whilst the occupation of small plots of land on which each man had to live and provide for himself and those dependent upon him was detrimental to the general advancement of civilisation. Especially in a country like this, where there were so many facilities for increasing the produce of land by means of machinery, it would be a decided departure from the best conditions if the number of small holdings for the purpose of farming as distinguished from helping to supply their own wants were increased. But at the same time, the more they could encourage those who were earning wages to have a piece of land on which they could employ their leisure time, the better it would be for their happiness and welfare.

Mr. Rowland Hamilton, dealing only with the statistical side of the question, said one lesson that might be drawn from this excellent paper was the manner in which statistics were rendered. It made it more easy for those interested in the economical bearings of the subject to suggest in what way they should be interpreted and might be improved. One point which must have struck them was the classification of holdings; but these were made to include in one total those from $\frac{1}{4}$ to 1 acre, from 1 to 5, and from 5 to 20 acres, and so on up to those over 1,000 acres. But some line of distinction should be drawn when holdings which might fairly be called "agricultural" came under consideration. No doubt allotments were an adjunct of the greatest value to our economical system, but some of them, especially where other large industries of different kinds prevailed, could hardly come into the statistics of agriculture at all. He remembered, for instance, in the Cleveland iron district, seeing as flourishing a set of allotment holdings as could be desired in connection with smelting and mining works. These were admirable in themselves, and were worthy of record in statistical returns. Still he would venture to suggest a general principle on which a valid distinction might at all events be roughly based, which was this: was the holding one out of which the occupier had to gain his livelihood, or was it merely an adjunct to some other profitable industry? The incidents affecting the two classes were very different, and they might with advantage be separately treated in the returns made. There were no doubt, as had been remarked, some forms of allotment which we could hardly expect to find included in general returns, as for instance those where farm labourers received strips of land partly worked by the farmer's ploughs, &c., which would vary from year to year as might be found most convenient. But to go too minutely into statistics of this kind would add too much to a weight of detail already too oppressive. It would nevertheless be very desirable if in some general way the quality of land could be indicated. There is land which will support 5 sheep to 1 acre, and land 5 acres of which will hardly keep 1 sheep. Without going into such extreme cases as these, there was so large a difference in the capacity of land, and the capital and labour which were required to work it, that some broad distinction is almost essential if any just comparisons are to be instituted between one part of the country and another.

[*Note.*—From the tables cited, a general average of 60 acres for holdings in England only is deduced. Taking those over 5 acres only, the average is nearly 85; those over 20 acres average nearly 130 acres; and those over 50 acres over 177 acres. So an average of about 150 acres seems about the mark for holdings which may fairly be termed "agricultural." The average of holdings from $\frac{1}{4}$ acre to 20 acres is nearly $6\frac{1}{2}$ acres.—R.H.]

The Chairman said on one point they would all agree, viz., that the discussion had been a most valuable one, and they were all extremely indebted to Major Craigie for the very able, elaborate, and clear paper which he had placed before them, and also for the excellent way in which he had made even the dullest amongst them fully understand the subject by the illustrations which he had placed upon the wall. He (the Chairman) did not feel competent to go into the details of the paper itself, as it was a subject with which he had only become acquainted since it had been forced upon his attention by discussions in Parliament, and no time could have been more opportune for its presentation than on the eve of a Parliamentary discussion upon the condition of agriculture in this country. Among the more salient points in the paper specially worthy of attention, was the point that the unit of cultivation did not in any way represent the unit of agricultural holdings. When gentlemen look up statistics on these subjects, they were very apt to confound the two things together, and when there were so many cultivations to consider, it might be thought that each represented an agricultural holding. The next important point was that statistical returns, improved as they had been, still failed to account for the whole of the area under cultivation, and also failed to distinguish in respect to a large tract of country between the land which was cultivated and uncultivated. With regard to the small allotments held in various countries abroad, it could not be denied that small holdings prevailed there to a much greater extent than in England (although there had of late been an increase here), and that they prevailed to the greatest extent in countries where the soil was rich, or else where there was that adjunct of wages which had been alluded to as being necessary to support life in addition to the very small holdings which it was desirable that every labourer should have. One set of figures cited he had noticed as being of very great importance, viz., that the aggregate amount of land held by the very large holdings in this country, after all only equalled the amount of land held by the small holdings, so that there was some probable expectation that accumulation of land did not go on, and that its dispersion was proceeding if not as fast as many of them could wish, still as fast as possible. He did not feel competent to go into the question of the respective ratio of animals upon each farm, but no doubt those gentlemen who had agricultural experience would treasure up these statistics and find them of great value. He had only in conclusion to ask them to pass a hearty and cordial vote of thanks to Major Craigie for his very valuable paper.

Major CRAIGIE, in reply, said he had very little in the way of criticism to meet. Most of the speakers had taken his figures without challenge on points on which he would have liked to have provoked debate. He would not have been surprised had others who had made a study of foreign returns not arrived at exactly the same conclusions as he had done, for these statistics were in some particulars puzzling, and in some instances, notably in the case of France, apparently self-contradictory. He noted that nearly every speaker had testified that profitable small holdings, particularly in urban districts, presupposed a mixture of occupations. The men who were successful were those who had another string to their bow besides the land. He hoped that one point to which he had called attention would not be lost sight of, namely, that if not immediately, at least in the future, there should be some greater uniformity in our own statistics and those of foreign countries on agricultural points. He had instanced the difference between the inland revenue data of "separate properties," and those returned as "agricultural holdings." He ventured to appeal to the authorities, whether it might not be well to have one and the same unit for all purposes, whether of rating, of taxation, or of occupation. They were always striving to arrive at one valuation both for local and imperial purposes, and why should not they in every case secure, both for statistical and for taxing purposes, there should be a unit of cultivation, namely, the amount of land held by one man? The question of foreign statistics was a much more serious matter. The question could only be advanced by men of different countries meeting in conference, as they might do under the auspices of the International Statistical Institute, and deciding what the most convenient units of cultivation were. In conclusion he begged to thank them for listening to a very dry statement of figures, which he hoped would be of some use for future reference when read carefully and studied in detail.

The MEASUREMENT *of* VARIATIONS *in the* VALUE *of the* MONETARY STANDARD.

By PROFESSOR J. SHIELD NICHOLSON, M.A., *Professor of Political Economy, Edinburgh University.*

[Read before the Royal Society of Edinburgh, 21st March, 1887.]

IT may seem at first sight almost contradictory to speak of variations in the value of the monetary standard. How, it may be asked, can the standard, which is the measure of values, itself vary in value? At present in this country the sovereign is apparently the standard measure of value, just as the yard is the standard measure of length, and it would certainly seem odd to most people to speak even hypothetically of variations in the measuring power of the standard yard. It may be useful for purposes of comparison and contrast to quote the definitions of the standard yard and of the sovereign or pound sterling. By Act of Parliament, 30th July, 1855, it was enacted, "That the "straight line or distance between the centres of the transverse "lines in the two gold plugs in the bronze bar deposited in the "office of the Exchequer, shall be the genuine standard yard at "62° F., and if lost shall be replaced by means of its copies." According to the Coinage Act, renewed in 1870, "the sovereign is "defined as consisting of 123·27447 grains of English standard "gold, composed of eleven parts of fine gold and one part of "alloy, chiefly copper."

When we compare the two definitions we see that whilst the former refers definitely to the distance between two points or to length, the latter refers only to the weight of a particular substance, and says nothing of value.

In the definition of a standard yard, a definite place and a definite temperature are mentioned (and other precautions are implied), which render the standard for practical purposes invariable. In the definition of the sovereign also, similarly precise elements are found, but they refer only to weight and chemical composition, not to value. Strictly speaking then it is only by accident that the sovereign can ever be a standard of value at different times and places in the same way as the yard is the standard of length. "At the same time and place," says Adam Smith, "money is the exact measure of the real exchange-"able value of all commodities. It is so, however, at the same "time and place only."

I will try to show how a standard yard might be constructed which would correspond logically to the sovereign as the standard unit of value, and under what conditions the sovereign would really correspond to the standard yard actually adopted. There are of course an infinite number of ways in which a thoroughly bad standard may be chosen. The one I have chosen is this: a standard yard might be defined as the length of a shilling's worth of standard mercury enclosed in a standard tube placed on a standard sun-dial in every market place at noon-day by Greenwich time. Now in the standard yard as thus defined, there would be no dispute as to the meaning of the term at any given time and place, at least in any market at noon-day. Any merchant who had agreed to sell a yard of cloth need only repair to the market place at noon-day to find out how much or how little he must cut off the roll. The contract would be capable of a certain interpretation. If standard mercury were cheap, and the sun hot, the buyer would gain and the seller would lose, if the contract had been made beforehand. At the same moment, and in the same market however, all traders in all kinds of goods sold by the yard would be able to conduct their business in a perfectly accurate manner.

This will perhaps seem an extreme illustration of the nature of the standard unit of value, and I admit that in degree the sovereign is not quite so bad as the standard yard I have just described, if the standard tube were a very sensitive thermometer and the price of mercury were very variable. But in one celebrated case in history this illustration, even in its most exaggerated form, would have been really inadequate. The *assignats* issued by the Government in the great French Revolution in about four years sunk to $\frac{1}{30000}$ part of their nominal value. The *assignat* was, it is true, an inconvertible note, but it was for a time the standard unit of value, and in different times and places the value was much more uncertain than the length of a standard yard of the kind just described. We could, however, easily imagine a standard yard of this kind being quite stable under certain conditions. Suppose, for example, that the price of mercury were fixed by law, the climate of the country uniform, and the tube of a particular kind, it would be possible for the new standard yard to be as accurate as the old.

Under certain conditions also the sovereign might be as good a measure of value as at present our standard yard is of length. Such, for example, would be the case if prices, whether by law, or custom, or accident, were always the same. If the price of everything bought and sold were fixed, the sovereign, as defined by the Coinage Act, would be a perfect measure of value, but with every movement in prices, the purchasing power of the sovereign varies, that is to say, so far the sovereign fails in its primary function as a standard measure of value. It is not a standard in the same sense as the other standards of the country. The use of a standard of value as distinct from a mere medium of exchange, is to measure values at different times and places, and it is only so far as the sovereign of specified weight and fineness happens to preserve the same purchasing power that it can be considered even sufficiently accurate for practical purposes. The difference between the standard of value and other standards is shown in the case of an agricultural lease. Acres, bushels, tons, have a precise meaning as regards extension, capacity, and weight, but the pound sterling has no precise meaning as regards value. So many pounds weight of ten thousand different articles of a certain quality would, so long as the Act defining the pound weight remains in force, mean precisely the same thing, a definite amount of commodities; but so many pounds worth of ten thousand articles would, in all probability, vary in meaning every day, although the Act defining the pound sterling were observed most religiously.

Against some kinds of uncertainty in the interpretation of contracts, the legal definition of the sovereign is ample guarantee. Illogical as it may seem, as now defined, the sovereign as a standard of value would be much worse if, according to the needs of a tyrannical government, its weight and fineness were constantly changing.

A contract for a certain amount of standard gold is certainly to be preferred to a contract for an uncertain amount, and after repeated warnings from history, civilised nations have recognised the foolishness of making petty gains by debasing their standard.

Still a certain weight of standard gold is a very different thing from a certain amount of purchasing power, and the inquiry into the variations in the value of the monetary standard is probably by far the most important problem or group of problems in the wide field of economic science. For in other words such an inquiry is an attempt to give precision to the vague expression, general movements in prices. A general movement in prices is, however, the resultant of a number of particular movements, and in these particular movements again we find the proximate causes of the distribution of the industrial forces of the world and of the wealth which these forces create. "Every science"* says Clerk Maxwell, "has some instrument of precision which may be taken "as the material type of that science which it has advanced by "enabling observers to express their results as measured quantities. "In astronomy we have the divided circle, in chemistry the

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* "Theory of Heat," p. 75.

" balance, in heat the thermometer; while the whole system of " civilised life may be fitly symbolised by a foot rule, a set of " weights, and clock." To these symbols of civilised life I would add a piece of standard money, and in illustration of the general observation I would point out that the principal quantities with which the economist has to deal are prices.

In discussing variations in the value of the monetary standard, two kinds of inquiries of a very different nature are usually blended together, which it would be much better to keep distinct. In the *first* place we have a purely statistical problem—namely the observation and classification of prices and the measurement of the rise or fall observed in particular groups, in combinations of these groups, and finally in the whole mass of exchangeable commodities. Further, the record of prices may refer to different places at the same time—a comparison may be made between different industrial areas in the same nation or between different nations.

But there is a *second* kind of inquiry implied in the general expression which is still more difficult and complex. The primary object of all scientific classification is the discovery of causes, and even for practical purposes the mere observation of variations without any further inquiry into the causes would be incomplete. It is only when the causes have been estimated that any idea can be formed as to whether the variations are likely to be temporary or prolonged, or whether, by any action of government or individuals, they may be reversed or modified.

There ought to be no difficulty in seeing that these two inquiries are quite distinct, and that it is one thing to measure variations in the purchasing power of the sovereign, and quite another to give a scientific explanation of the variations.

I propose then for the present to postpone altogether the second inquiry as to the causes of variations in the value of the monetary standard, and to discuss in the first place the methods by which such variations may be measured. The principal difficulty arises from the fact that relative prices vary, whether we consider times or places. Between two dates, for example, bread may fall and meat may rise, or taking a wider illustration, all kinds of manufactures may fall, whilst all kinds of agricultural produce rise in price; and similar differences may be observed when comparing different industrial areas. Even if there is a rise or a fall in every particular commodity, or a variation in the same direction, still there is almost certain to be a difference in the degree of the rise or fall in different articles. Take for example the comparatively simple case of the purchasing power of the nominal or money wages of unskilled labour. Suppose that, in comparing two points of time, it is found that every other article of the labourer's usual consumption has fallen in price, but that bread has risen. If the rule of one commodity one vote is adopted, the result would be that the purchasing power of wages had risen, whilst in reality the labourer was compelled greatly to curtail his consumption. A similar difficulty arises when comparing the purchasing power of wages at different places.

It would be easy to give a number of particular examples of temporary and local variations in the value of the standard. The same nominal rent for land may mean at different times very different things, both to the landlord who receives and to the farmer who pays, and the purchasing power of the sovereign compared with various groups of articles in London and in the rural districts would vary very much. It would be easy both as regards rent and wages to construct a better standard than is given by the pound sterling, and practically such standards have been resorted to in produce rents and sliding scale wages.

But it is important to observe that in every one of these cases we should assume that the particular movements in prices between different times are caused partly by special causes, *e.g.*, improved processes of production, &c., and partly by causes of a general and wide-reaching character. In other words, every particular price depends partly on the relative value of the commodity compared with others, and partly on the relative value of money compared with things in general. In some cases this distinction is quite obvious, as for instance when there is a sudden and general rise in prices owing to large issues of inconvertible paper. But usually the cause of any general change may for a long time remain unobserved. Often the change is gradual, and can only be detected after a long interval, and in any case it does not affect all commodities simultaneously in the same degree, that is to say, a disturbance of relative values is caused by the process of a re-adjustment. The object of the present paper is to show how any general change between two points may be measured, it being assumed that such general changes are possible. I say nothing for the present either of the causes or the consequences of such variations. The present inquiry is simply a problem in the method of statistics, with a few examples which must be considered rather as illustrations than deductions.

In the first place, what are we to understand by the purchasing power of the standard over things in general?

At any date taken as the basis of comparison, the aggregate of purchasable commodities in the widest sense in any country may be expressed thus:—$\pounds_1 w_1 = (q_1 . p_1 + q_2 . p_2 . . . + q_n . p_n)$, where q represents the total quantity of any item in the national inventory and p the price per unit. Strictly speaking, every item should be stated separately which through quality or locality has a special price, and the series would be practically infinite. Suppose for example that in 1870 the total mass of purchasable "things" was 8,000 million £, then the purchasing power of the pound sterling would be strictly $\frac{1}{8,000,000,000}$ part of each item (q_1, q_2, &c.) in the series.

Such a conception of purchasing power or of the value of money would be of no practical use except for clearing up the obscure phrase "the value of money in terms of things in "general." The series, however, might be simplified, (1) by various devices of grouping. Thus instead of various prices of land of all qualities, and in all situations, we may take only a few classes, and finally only two—agricultural and building. So again of houses, we may take a few classes or even group all together. By proceeding in this process, we might reduce the series to a limited number of terms. (2) This number might be further diminished by neglecting all below a certain value, and the idea formed of the purchasing power of the standard would be adequate according to the proportion of the total rejected to the aggregate. In proportion, however, as the series was simplified and abbreviated, the conception of purchasing power would become illusory, for it would lead to something of this kind: the purchasing power of the sovereign would be represented as $\frac{1}{8,000,000,000}$ part of the land of the country, of the houses, of the furniture, of the railways, and of the services of labour; or dividing out the quantities, we should say that a sovereign would purchase $\frac{1}{100}$th part of an acre of cultivated ground, plus $\frac{1}{1000}$th part of a house, plus $\frac{1}{1000}$th part of the furniture of a house and the labour of a British working man for a quarter of an hour. Thus the whole meaning of the expression has been squeezed out in the process of condensation.

But although the unit of purchasing power has been thus reduced to an imaginary or impossible quantity, it is quite possible, as in many mathematical problems, that it may for some purposes be used and not appear in the final result. Such might be the case if we measure the appreciation or depreciation of the standard or the change in its purchasing power between two points of time.

The national inventory at the second date would consist of the old inventory plus or minus any difference in the old items and plus the new items. This might be expressed symbolically by saying that $£_2 w_2 = £_2 w_1 + d(£_2 w_1) + £_2 N$. Now if there has been only a relatively small addition to the national wealth, either by an increase in the old or an addition of new elements; if, for example, the population has remained nearly stationary, no great changes in the production of wealth have occurred, or in its distribution, or in the material wants of the community, then the two last terms may be neglected, and the change in the purchasing power of the £ is equal to the fraction $\frac{w_1}{w_2}$.

I propose to call this fraction the co-efficient of appreciation.

Thus if the total value of the old inventory at the new prices be doubled, that means that the purchasing power of the £ is one-half of what it was.

The simplest case would occur when the two last terms vanish and the movement in prices has been perfectly uniform, for then $\frac{w_1}{w_2}$ would measure exactly the change in purchasing power. Such a case would occur theoretically on excessive issues of inconvertible paper as soon as equilibrium is restored.

In the series given, in every case p has become $n\,p$.

Again, if the increase in the quantities of the national wealth has been uniform, and relative prices have remained the same, q in every case becoming $m\,q$, and p in every case $n\,p$, then, $£_2\,w_2 = £_2\,.\,w_1\,.\,m\,n$, and $n = \frac{w_2}{w_1 . m}$ and the new purchasing power of the standard is $\frac{w_1}{w_2}\,.\,m$ of the old, that is, $\frac{w_1}{w_2}\,.\,m$ is the co-efficient of appreciation.

The case might, however, be reduced to the former under the conditions assumed, for the purchasing power of the standard will obviously be the same for the old inventory and for every uniform addition to it. Thus the change in the standard may be measured by the old inventory at the old prices divided by the old inventory at the new prices.

Suppose in any interval the nominal wealth of the country has increased; this may be due either to an increase in quantities or to a rise in nominal prices (or depreciation of the standard), or to both causes. Now if the increase in both q's and p's has been uniform, the change due to the standard may be found and the change in quantity deduced. We first find n and then m.

It may be objected that if we assume relative prices remain the same, we might calculate the change in the standard by the change in the price of any single article. The objection is quite valid, but it does not destroy the value of the method proposed. For the use of the method is as the basis of an approximate calculation. As a matter of fact, relative prices are constantly changing by peculiar changes affecting the demand and supply of particular commodities. No one would dream of saying the price of potatoes has fallen one-half, and therefore all prices have fallen one-half, and similarly of every particular commodity.

Next, suppose then that the old inventory has remained the same as regards items and their quantities, but that relative prices have changed. The purchasing power of the unit at the first date would, as was shown, consist strictly of an n^{th} part of every item where $n =$ the quantity of the national wealth measured by the standard. Similarly of the second date. If relative prices have changed, the two series cannot be compared, but the sum totals of the series may; and the only meaning of change in the purchasing power of the unit is (quantities remaining the same) $\frac{w_1}{w_2}$, when w_1 is the total at old prices and w_2 the total at the new.

But hitherto it has been assumed either that the national inventory remained the same, or else that the articles increased uniformly; but relative quantities change no less than relative prices, and in fact both changes are constantly going on. As a rule, *e.g.*, a fall in relative prices due to the improvements in manufactures leads to increased production, and a fall due to the lessened demand leads to a decrease in production, and *vice versâ*. There are besides changes due to a variety of special causes.

In this case the only plan seems to be in the first place to estimate generally the change in quantity. This can only be done strictly by reducing to some common measure, and that measure must be the standard of value. Let the total value of the new inventory (consisting of different quantities of the old items) reckoned at the old prices be v_1 and the total value of the old inventory, also at old prices, be w_1 then $\frac{v_1}{w_1}$ is the measure of the increase in the quantity of wealth, or the m of the formula for appreciation.

But if the quantities had increased uniformly m, then, as was shown above, $\frac{w_1}{w_2} . m$ would give the measure of the new purchasing power compared with the old. Substituting for m its value $\frac{v_1}{w_1}$, the expression becomes $\frac{v_1}{w_2}$. That is to say the change in the purchasing power of the standard is found by dividing the value of the new inventory at the old prices by its value at the new.

Only one other difficulty remains. It may happen, and in progressive societies is sure to happen, that at the second date the national inventory consists partly of new articles, and partly of different qualities of old articles. In this case we cannot adopt the method last described so far as these articles are concerned, for the old prices of undiscovered articles cannot be obtained directly.

Let N be the total value of this part. We may then either neglect it and obtain the co-efficient of appreciation by considering only that part of the new inventory for which corresponding prices may be obtained; or the only other resource seems to be to estimate the prices which would probably have been obtained at the former date if the articles had been in existence.

If *N* is left out of consideration, and is small in amount, relatively, the co-efficient thus obtained will be approximately correct. If however *N* is relatively too large to be neglected, the co-efficient obtained by neglecting it will only be correct on the assumption that the articles considered are fairly representative of the whole group *N* included.

If the interval between the two dates is small, *N* will also be small, but if it is very great, and the society progressive, *N* will be relatively very large. *N* might be neglected comparing 1880 with 1881, and probably comparing 1830 with 1880 *N*, though large, might be considered as represented by the other articles.

But if we compare 1880 with 1280, *N* would be very large, and that part of the modern national inventory which corresponds to the mediæval would not (it may be thought *primâ facie*) fairly represent the whole.

Nor does the second plan suggested, viz., that of probable estimated cost of *N* at the earlier period, seem even theoretically possible, when we consider the different methods of production, the cost of raw material, &c. It may however be pointed out that if between very remote periods the co-efficient of appreciation cannot be found, the fact is not of much consequence, for in general, at very long intervals we only wish to compare the purchasing powers of particular kinds of income, so as to discover the relative material prosperity of various classes.

Before passing on to consider the practical uses of the formula in a simplified form, it may be convenient to re-state the general principles involved in this method of co-efficients. The leading idea is this: Between any two points of time a change occurs in the aggregate value of the national wealth. This change will be due either to an increase or decrease in quantity, or to an increase or decrease in nominal value in the general level of prices, *i.e.*, the appreciation or depreciation of the standard, or to a combination of both causes. Now if we can find the increase in quantity, we can deduce the change in value. The theoretical method gives a plan by which, with sufficient statistics, the change in quantity might be computed with comparative precision. At present, however, even as regards the present century, and even in the last twenty years, sufficient statistics are not forthcoming for the application of the formula in the strict sense. It may be of use however as the basis of a practical method of approximation, and as leading to qualifications in the use of existing methods.

Such a method is given by taking $\frac{w_1}{w_2} . m$ as the formula, when $w_1 =$ the aggregate wealth at the first date, and w_2 at the second, whilst m is the increase in quantity, m being estimated from various independent considerations. For example, other things remaining the same, m should be proportioned to the increase in the population and to the increase in the efficiency of the labour and capital. It will be observed that we assume in this formula that N may be considered as fairly represented by the average of the articles in the old inventory; taking this method I have worked out roughly some examples.

From calculations made in Porter's "Progress of the Nation" the total personal property of Great Britain was in 1821 about 1,400 million £. In 1841 the total had risen to 2,000 million £, thus $\frac{w_1}{w_2} = \frac{1400}{2000} = \frac{7}{10}$. Now to find m, the increase in quantity, we observe first that population increased from 14·3 to 18·7. The period also was marked by great improvements in the efficiency of labour and capital. Even in agriculture the productive capacity of the soil had been nearly doubled, with a very small increase in the rural population. Porter calculates that 10,000 acres cultivated as in 1801, supported 3,800 as against 6,000 in 1841, whilst 32 acres had been reclaimed for every 100 of population. But if in agriculture the productive power of the country was not quite doubled, there can be little doubt that with very moderate estimates in other industries it was was more than doubled. This was certainly the case in the manufactures of cotton, wool, silk, linen, paper, and soap; and it is instructive to note that the tonnage of shipping, and the number of bricks and of carriages was doubled. I think then we may safely say that the productive power of the nation had at any rate doubled during the period. Thus m would become by considering population and efficiency

$$2 . \frac{18.7}{14.3} = \text{about } \frac{19}{7} \cdot \quad \text{But } \frac{w_1}{w_2} = \frac{7}{10} \therefore \frac{w_1}{w_2} . m = \frac{19}{7} . \frac{7}{10} = \frac{19}{10}.$$

That is to say the purchasing power of the sovereign in the period had nearly doubled, or general prices had fallen nearly 50 per cent. Roughly speaking, the personal property of the country had increased in quantity nearly three times, but in value only one and a half times.

I have been able to make the calculation only in a rough manner, but I have not exaggerated the items taken, and from other circumstances, *e.g.*, durability of many portions, we might suppose that the quantity of wealth had increased more than three times, and thus prices have fallen more than 50 per cent. I have taken only personal property, so as to use Porter's figures, but I may mention that taking also real property into account, by another calculation there is very little difference.

I have made several more calculations on the same plan, and the general result is always the same, namely, that since the end of last century down to 1850 there was a great appreciation of gold, the purchasing power of the sovereign having almost doubled even between 1821-41.

Even between 1848 and 1868, the period during which the great gold discoveries took place, and are supposed generally to have depreciated gold to a great extent, I find that the purchasing power of the sovereign (calculated by this method) rose probably a little, and that in fact, instead of depreciation, there was on the whole appreciation. In this calculation I have used the figures which Mr. Giffen* adopted for his calculation by quite a different method. The income of England assessed to income tax at the two dates was about 230 million £ in 1848, and 365 million £ in 1868.

We may assume with Mr. Giffen that $\frac{w_1}{w_2}$ was also in this proportion. Now, in finding *m* or the increase in quantity, we have Mr. Giffen's assertion that "the population is one-quarter more "numerous, and man for man, their industry is nearly twice as "productive."

If we take *m* as 2, we get appreciation in the proportion of 6 : 5.

In this case

$$\frac{w_1}{w_1} = \frac{230}{365} = \frac{46}{73} = \text{roughly } \frac{3}{5}$$

So that if we assume that $m = \frac{5}{3}$, or that the quantity of wealth was increased in the proportion of 3 to 5, there would have been neither appreciation nor depreciation.

If, again, we assume that the quantity of wealth had increased simply in proportion to the population, we should have $m = \frac{5}{4}$, and thus the co-efficient of appreciation would become $\frac{3}{4}$. Thus at the outside, the utmost depreciation of the standard by this method is 25 per cent. But when we look into the history of the times between 1848-68, we find it was a period of enormous production. The new supplies of gold in the way described by Tooke gave a tremendous stimulus to labour, and this country, more than any other, felt the effect of the stimulus. For example, between 1848 and 1858 only, the mileage of railways was doubled, the value of the exports trebled, and the tonnage of shipping increased 35 per cent. Now if we assume that the wealth per head of the community had increased in this twenty years only by 20 per cent., then by 1868 the effects of the new gold had been neutralised, and the standard had regained its former purchasing power. I am inclined to think, however, having regard to the enormous increase in the activity of production, that an actual appreciation had occurred.

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* "Essays on Finance," First Series, p. 95.

It is this calculation which will probably create most surprise or doubt, as the general belief is that the effects of the gold discoveries were much greater, and lasted much longer, and by the method of index numbers (Jevons) there seems to be a depreciation of from 26 to 30 per cent. at least.

I propose then to make some remarks on this matter, using a more recent illustration. The most elaborate calculation recently made in this method is that by Mr. Sauerbeck, formed on a list of forty-five articles of the kind mentioned, including all important food products, minerals, raw materials of manufactures, and a number of other articles such as hides, leather, petroleum, and timber. Now the total value of all these articles (and a certain proportion was re-exported) was on the average 1872-74 577 million £, and in 1883-85 482 million £.

Using the formula $\frac{w_1}{w_2} . m$ we obtain m from figures quoted by him as $\frac{617}{525}$ (that is for the articles in question.)

Thus $\frac{w_1}{w_2} . m = \frac{617}{525} \cdot \frac{577}{482}$ = about 1·37 as the co-efficient of appreciation, or a fall in prices in the proportion of 137 : 100, or a fall of about 26 per cent.

Now when we turn to the national inventory, we find that in 1875 it was calculated by Mr. Giffen as 8,500 million £, land being reckoned at about 2,000 million £, houses at about 1,400 million £, and moveable property not yielding income (furniture, &c.) at 700 million £; these three items alone being about seven times the value of the articles used for the index numbers, which contribute about one-fifteenth only of the grand total. It must be observed also that Mr. Giffen's calculation is only of capital, and would thus exclude apparently all commodities consumed within the year. This leads me to observe that one of the most important consumable commodities is the labour of the country, the amount annually spent on manual labour being reckoned at 620 million £, and on professional labour 180 million £. How much of this should be reckoned I shall consider later.

Now as regards the index numbers, it is evident at once from the figures quoted that, as regards bulk the amount is not sufficient, and therefore the measure obtained in this way can only be justified by assuming that the movement in other commodities will be fairly represented by that in raw materials.

But on analysing the causes of difference in relative values, this assumed representative character of raw materials does not seem reasonable whether we take long periods or short intervals. Take for example the rent of agricultural land and the price of agricultural produce. It is easy to show that if the yield remains the same, and there is a fall in prices, but a less fall in the expenses of working, then rent will fall more than in proportion to the fall in prices.

Then, again, as regards houses. We must distinguish between the building rent and the ground rent. Over any considerable period the rise in ground rents in large cities has been relatively the greatest of any commodity. So far as the cost of building, however, is concerned, the movement of prices in the rate of building rents might easily be in the opposite direction, and any change in the cost of building indirectly affects old buildings. If houses can be built cheaply, people cannot let old houses at their former rents.

It is however principally in articles in which machinery has taken the place of manual labour that the movement in raw material fails to be a correct measure of the fall in prices. Any economy in labour, any more effective combination or division of labour, acts in the same way as machinery. Speaking generally, over a long period the cost of production of raw materials admits of much less diminution reckoned in labour than is the case with other commodities.

This leads me to notice in passing that it is this improvement in the efficiency of labour which makes it impossible to take labour as the unit of measuring value.

If all articles were produced by unskilled labour, paid at uniform rates, then changes in these rates would be the best possible measure of change in purchasing power. Roughly speaking, if money wages doubled all prices would be doubled, and the standard would have half the purchasing power. But if the efficiency of labour has doubled, money wages might be doubled and prices remain the same. If we could allow for efficiency so as to make a quotation for wages for work done, wages would be the best possible measure of a very large group.

Now in any very short period it may be said there can be no great change in the efficiency of labour, and consequently if the hours remain the same, the average rate of wages would be a good practical measure for short periods. Between 1850 and 1856 Tooke calculated that there was a rise in the average of wages of 15 to 20 per cent. in unskilled labour; the rise was in many cases 40 per cent.

But even in such a short period we find that as regards cotton goods the raw material was about the same, and the price of the cheaper forms of cloth the same, whilst the better cloth had fallen in price 25 per cent. Thus the rise in wages in this industry of 20 per cent. must have been accompanied by more than that increase in efficiency. Still if the rise in average wages was as computed 20 per cent. in six years, we may assume that at first there was a depreciation of gold to about that extent.

But fascinating as this method of calculation seems at first sight through its apparent simplicity, it is really practically of very little value. There are thousands of rates of wages for various kinds of work, and the efficiency of labour and capital is constantly changing, and the average of the change can only be roughly measured.

I give, however, one other example. Mr. Giffen calculates that in fifty years the wages of skilled labourers have risen 50 per cent.; in a previous calculation he supposed that between 1848 and 1868 the efficiency of labour in general was doubled, so that it does not seem unreasonable to say that in fifty years skilled labour became three times as efficient. If this is allowed, then the commodities produced by skilled labour must, on the average, have fallen at least one half in price (for profits have also fallen). On the whole, however, it seems best to consider wages only in so far as paid for services rendered, and not to count them in the national inventory when the result of the labour appears in a material form. We should then only include the value of the wages of domestic servants and of various professional people who produce nothing material, *e.g.*, doctors and lawyers.

This examination however of the rate of wages shows clearly enough the insufficiency of the index numbers founded on raw materials as a measure of appreciation. In the first place, the improvement in efficiency of labour has been much more marked over any considerable period in other industries than in the extractive and agricultural group. Skilled labour obtains higher nominal wages reckoned in time, but produces more cheaply. The rise in skilled labour, however, has raised proportionately the wages of unskilled labour, in which the increase in efficiency has not been so great. Thus agricultural labour in this country costs more, and therefore the fall in produce due to foreign sources of supply has a still greater effect on the rent and the price of agricultural land.

In the same way the relative cost in the other extractive industries has risen. Again, in America and our colonies, and in all countries in which there is a considerable element of skilled labour, the cost of unskilled labour compared with skilled, regard being paid to efficiency, has increased, and thus the relative cost of raw materials has risen. This rise will be greater still if it is assumed that in all fully peopled countries the stage of diminishing return has been reached, owing to the necessity of resorting to inferior sources of supply, and more costly methods of production and extraction. Eventually at any rate the tendency to a relative increase in the cost of raw material on this ground must also operate to make raw materials a still less accurate measure.

At the same time it must be allowed that at any particular time, owing to great improvements in communication, and the opening up of new countries, some kinds of food products may fall more rapidly than manufactures, in which case the fall, if general, would be less than the usual index number; and if the value of the raw material compared with the labour in manufactures is small, manufactures may fall less rapidly than the raw material (*e.g.*, fine lace).

The general method which I have described cannot at present be used with any degree of accuracy owing to the want of statistics. In the United States, when the census is taken, a careful estimate is made of the national wealth.

If the authorities were to calculate the value of the old items at the new figures, then a good approximation might be made to the general co-efficient of appreciation. It would, however, be a much more simple task in this country, where the conditions of industry are not subject to such violent changes. As it is, all estimates of the national wealth, even for nominal value, rest on the income tax returns, and for quantities we must resort to still vaguer measures.

Even however when used in this very rough manner, some very useful qualifications of the method of index numbers may be obtained.

Speaking generally, I should be inclined to say that over a long period (say) more than twenty years, the index numbers based on raw materials are likely to give too low a measure of appreciation. That is to say, if we were to take the purchasing power of the standard as regards things in general we should find it greater than as regards raw materials. But, on the other hand, in any short period, and the shorter it is the more the tendency is marked, the index numbers may make the appreciation appear greater than it is when the wider basis is taken. This is nearly equivalent to saying that raw materials, and the like, feel appreciation much more quickly than the derivative products.

If, for example, we compare 1875 with 1885, the "Economist" index numbers give a fall of about 30 per cent., or the purchasing power of the sovereign has risen very steadily until 100*l.* will purchase as much as 130*l.* before.

Now by the method of co-efficients, taking the gross returns of all kinds of property and profits assessed to income tax, and allowing for increase of population, we have (Sauerbeck) a nominal income of 17·5*l.* in 1875 as against 17·9*l.* in 1885 per head of population. This, it may be remarked, is an increase of 2·3 per cent., compared with an increase of 32·6 per cent. in the former decade.

This great fall in the rate of increment of itself would point to an appreciation of the standard in the second period, and this is confirmed when we endeavour to estimate *m* in the formula or the increase in quantities.

We find that the production and imports into the United Kingdom of all the great staples in Mr. Sauerbeck's list has increased by 535 to 617, or nearly 18 per cent., and the tonnage of steamers has become doubled.

The fact that the rental of houses has increased more than 30 per cent., whilst population has only increased 11 per cent., would point to the conclusion that a great amount of building must have taken place, and that the quantity of house accommodation, regard being paid to the size and convenience of the houses, must have largely increased.

It is said the returns for the second date were taken much more strictly; but the general conclusion, after making all allowances, is that on the wide basis of national wealth the appreciation cannot at present be so great as indicated by the index numbers. Since 1880 the gross rental of lands in the United Kingdom has fallen about 5 per cent.; but from 1875 the fall is only 3 per cent. In Scotland, where leases prevail, the figures are nearly the same; and in Ireland, the land of no rent, there is actually a slight increase during the last ten years. These figures show not merely the danger of trusting too much to the income tax returns, but they show also that the gross rental of land, and thus the value of land, responds slowly to the general movements of prices.

The same is probably true of houses, for unless there has been a very great change in the quality of houses, it would seem that house rent, like land rent, has not felt the appreciation so quickly as raw materials, in fact it has done so less quickly than land.

Then again as regards Schedule D, it seems highly probable that the absolute decrease between 1876 and 1880 was due to a fall in the profits of producers owing to the fall in prices of commodities, and that the rise which has taken place since is mainly due to the increased profits of the middleman, who is a very imperfect conductor of the fall in wholesale prices. If this view is correct, we again find that the actual appreciation, or general fall in prices, is much less than indicated by the index numbers. This view is confirmed by the slight fall in money wages.

If however it is true that over a long period the true appreciation is more than that marked by the index numbers, we must expect the nominal value to consumers of lands, houses, and commodities to fall much more, and although the official returns as yet hardly give evidence of this, there are abundant signs of the fall being in progress. The disturbance caused by the re-adjustment of rents is in full operation, the payment of the same nominal wages to the higher class of domestics is only possible by restricted employment, and any attempt at re-adjustment in other employments is resisted to the utmost.

The inquiry in the present paper is however purely statistical, and in the main an inquiry on the theoretical side. The only assumption made is that the price of every saleable commodity, and the prices of larger and larger groups, are the resultant of two sets of causes—one special and the other general; the wider the range and the more diversified the prices chosen, so much more do the special causes tend to neutralise one another and to lay bare the influence of the general causes. If all kinds of raw material and simple products show a downward movement on the whole, we may presume that this is due to some very general causes, but such causes may be, although general, such as affect this large group of commodities principally. If however the downward movement is found in the mass of the wealth of a great country, we must go further in search of causes, and if the same tendency is observed over all countries using the same standard, still more general causes must be sought for. We can no more discover these general causes by analysing the movements of particular prices, than we can discover the velocity of the earth in its orbit by analysing the movements of the creatures upon it. In comparing relative velocities on the earth's surface we assume that surface to be at rest, and in analysing any number of particular prices and their relative movements, we always assume that the value of the standard remains the same.

I hope to discuss at a future time the causes and consequences of these changes in the value of the standard.

MISCELLANEA.

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I.—*The Royal Statistical Society.*

The Council desire to call the attention of the Fellows to the fact that notwithstanding the change in the name of the Society by the addition of the word "Royal," they are still, in using letters after their names, signifying the membership of the Society, only entitled under Rule 6 to use the letters F.S.S.

II.—*The Imperial Institute.*

The Council of the Statistical Society have received the following letter, which they desire by this means to bring to the notice of Fellows:—

Imperial Institute

of the United Kingdom, the Colonies and India.

Offices: 1, *Adam Street, Adelphi,*
London, W.C.

Sir, *4th February*, 1887.

I have received the instructions of His Royal Highness the Prince of Wales to submit to you the request that you will be so good as to inform the Council of The Statistical Society of the hope entertained by His Royal Highness that they will feel disposed to invite the Fellows of the Society to take part in the foundation of the Imperial Institute for the United Kingdom, the Colonies and India, which is being established in commemoration of the fiftieth Anniversary of the Queen's reign.

The Prince of Wales believes that the form which it has been decided to give to this National Memorial and which has met with

Her Majesty's gracious approval is of a nature especially to commend itself to the Fellows of the Society inasmuch as the objects aimed at, and which it is hoped to attain, by the creation of the Imperial Institute are, in several important respects, kindred to or in harmony and sympathy with the important functions of the Society of which you are President.

If you and your Council should be willing to make an appeal to the Fellows of your Society to transmit through the Society their Donations towards the Fund required for the establishment of the Imperial Institute, the Society will thereby become directly identified with this National Manifestation of the respect and affection entertained for Her Majesty by all classes of Her subjects.

I beg leave to enclose a Pamphlet descriptive of the nature and objects of the Institute and shall be glad to give directions for the transmission to the Society of this and other papers for distribution among the Fellows, should the suggestion of His Royal Highness be favourably entertained by yourself and your Council.

I have the honour to be, Sir,
Your obedient Servant,
(Signed) F. A. ABEL,
Organizing Secretary.

The President of the
Statistical Society, &c., &c., &c.

WHAT THE IMPERIAL INSTITUTE IS TO BE.

1. The "National Memorial" of the completion of fifty years of Queen Victoria's wise and prosperous reign, and the Jubilee Tribute of love and loyalty from all Her Majesty's subjects, without distinction of class, creed or race.

2. The "Central Establishment" for illustrating the commercial, industrial, artistic and educational progress of the United Kingdom, the Colonies and India.

3. The "National Industrial and Commercial Museum," where will be displayed collections, carefully selected and arranged, and thoroughly described, of the natural and manufactured products of the Colonies and India, side by side with those of the United Kingdom.

4. The "National Free Reference Libraries" of Industries and Commerce, where anybody may become acquainted with the natural, industrial and commercial history and resources of the British Empire and the Colonies; where the Manufacturer, the Inventor, the Merchant and the Artizan may make themselves conversant with existing information on the results of Colonial exploration and development, and of the latest achievements in industries, trades and commerce in other countries.

5. The "Enquiry Office" for information upon all matters relating to the natural resources, the trades and handicrafts, and the commerce of every part of the British Empire; the "House of Call" for all who are concerned in the advancement of industry.

6. The "Samples Warehouse" from whence natural products

of the Colonies and India, with the latest information concerning their natural and commercial history, may be obtained.

7. The "Central Head" of commercial museums and enquiry offices, distributed throughout the United Kingdom.

8. The "Common Meeting Place" for all who visit Great Britain from the Colonies and India; the "Colonists' Home" in the Mother-Country.

9. The "Bond of Union" between Colonists and those at home, in their commercial and industrial relations with each other.

10. The "Central Source of Aid" for the advancement of technical education, and for the development of trades and handicrafts through the agencies of practical examinations, of scholarships and material aid in other forms, and of central and local competitive exhibitions.

11. The "Emigrants' Agency" where the intending Colonist may obtain full information as to the requirements, qualifications and prospects of the future home of his selection, and receive advice as to special training for different classes of emigrant life.

12. The "Connecting Link" between provincial centres, to be established throughout the United Kingdom, to aid and advise the Capitalist, the Artizan, the Merchant, the Tradesman, and the intending Emigrant, and to promote the mutual co-operation and the unity of interests and sentiment of all classes of Her Majesty's subjects.

III.—*The Sixth International Congress of Hygiene and Demography.*

The Council of the Statistical Society wish to make known to the Fellows generally that they are invited to take part in the above Congress, which is to be held in Vienna from 26th of September to 1st October next.

Fellows who may purpose attending the Congress are requested to communicate their intention to the Assistant Secretary (who will, on application, furnish further information on the subject), in order that their names may be duly reported and personal invitations sent to them from Vienna.

IV.—*Financial and Commercial History of* 1886.

The following is taken from the Supplement to the *Statist* of 5th February, 1887, in continuation of similar extracts for previous years—commencing with the year 1878:—

"The important fact as regards trade last year is that although undoubtedly the year was one of depression, it seems to have marked a turning point, and the gloom at the beginning of the year in all trade circles has been succeeded at the end by a generally cheerful feeling. The turning point seems to have been reached in the early summer, and since that date, month by month, the tone of business, first in one department and then in another, has gradually improved. The result is that although prices are generally very little higher at the end than they were at the beginning of last year, yet they are higher than at the intermediate low level which was reached during the year; and this change in the course of prices seems to be one of the main factors in the more cheerful feeling which now prevails. It does not appear that in any direction very much more business has been done than in the year 1885, which it will be remembered was one of great depression; but the languor of 1886 was most felt early in the year, and in the latter half there was undoubtedly an increase of activity which more than made up for the additional languor of the first half of the year as compared with any previous period. This last characteristic is especially reflected in two sets of figures —one, the statistics of imports and exports; and the other, the returns relating to pauperism. As regards the exports, it is found that the total exports of British and Irish produce for the twelve months ending December amounted to 212,364,000*l.*, or only 680,000*l.* less than in 1885; but this decrease took place exclusively on balance in the earlier months of the year, while in the later months of the year there was an increase, of no great amount it is true, but still sufficient to compensate, to some extent, for the decrease in the earlier part of the year. The account is not altogether satisfactory, because, it will be recollected, the amount of the exports in 1885 was much less than it had been in 1884, in which also there had been a decrease compared with the previous year. The slight decrease of last year, therefore, is a slight decrease as compared, not with a very prosperous year, but with a very depressed year. Still, as has been remarked, the important point is that depressed as 1886 has really been, it has yet witnessed the turning of the tide. The depression was in the earlier part of the year, and the improvement, which still continues, in the latter part. Much the same things may be said of the imports, with this difference, that the total imports for the whole year, amounting to 349,381,000*l.*, show a decrease of no less than 21 million pounds compared with the previous year, 1885, whereas the decrease of the exports, as we have seen, was quite nominal. This decrease, however, took place almost exclusively in the first half of the year, and on balance in the last five months it does not appear that there was any decrease at all. It has to be considered, of course, that this decline in 1886 succeeds a very considerable decline as compared with the two previous years, and the small figure is thus in itself not satisfactory; but the fact that the decline was so exclusively in the earlier half of the year, and that things began to improve in the latter half, is most undoubtedly satisfactory, and this is the feature in these returns to which attention should principally be given. We may refer our readers to the tables in the appendix for further particulars on this head, and we need only notice further at present that the decline in the imports is mainly in articles of food and drink, and that in some descriptions of raw materials—at least the raw materials for textile manufacturers—there is a large increase in the imports in the year as compared with the previous year. The other set of figures to which we propose to refer are the pauperism returns. It will be seen from the table in the appendix that while the increase in the number of paupers in the early months of the year from January to May, ranged from 3·5 per cent. in January to 9 per cent. in March, there has been since May a gradual decline in the amount of the increase; the figures being 3·2 per cent. in June, 3 per cent. in July, 2 per cent. in August, 1·9 per cent. in September, and 1·2 per cent. in October. Nothing could be more significant of the tendency to improvement all through the year. In addition, reference may also be made to the figures of railway traffic and to the Bankers' Clearing House returns. It will be seen from the statement in the appendix as regards railway traffic, that all through the early part of the year, on the seventeen lines which are usually summarised in our weekly returns, there was a very considerable decrease of traffic, the decrease in the first half of the year being, in fact, 579,000*l.*; but in the second half there is a complete change, and there is generally an increase from week to week, the final increase for the whole half-year being 128,000*l.* No doubt it has to be considered as regards these figures, that the increase in the latter half of the year was very largely in passenger traffic, and there was still a decrease in goods traffic; but the decrease in the latter was extremely slight indeed, and was probably due in part not to the falling off in business, but to a reduction of rates. As regards the Bankers' Clearing House returns, in the early part of the year, the weeks in which there was a decrease were almost as frequent as the weeks in which there was an increase. But from the end of June or the beginning of July there was hardly a week in which there was not an increase—and sometimes a very considerable increase. No doubt a large part of this improvement, as regards the Bankers' Clearing House returns, is due to the increase on Stock Exchange settling days, there being no such improvement generally, or on the fourths of the months; but an increase on Stock Exchange settling days is, of course, in itself symptomatic of improvement in business generally, with whatever qualifications and doubts it may be regarded. Altogether, then, there is some cause for satisfaction at the general course of business throughout the year. People in business have shaken off their long languor and depression; have found that at last things have touched bottom, and have been more disposed to go ahead. There are many circumstances not altogether reassuring, and some trades, it would seem, have hardly participated in the general improvement; but, on the whole, merchants are more cheerful, and an impetus has been given to trade which cannot but last a good while, unless some untoward events should happen.

"We propose now to notice very briefly the course of events in one or two of the more conspicuous trades, showing the nature of the improvement which has occurred.

"*The Woollen Trade.*

"The principal improvement which has been witnessed has undoubtedly been in wool. A full account of what has happened will be found in our appendix; but as regards prices, the following short statement, given by Messrs. Helmuth Schwartz and Co., may be noted by way of record as to when the change took place and how far it has gone:—'Prices of Australian merino wool fell during the first quarter of the year about 15 per cent., the lowest depth being reached in the middle of the April series; they then rose 50 to 60 per cent., the opening week of September series marking the highest point. Since that they have fallen again 20 per cent., and stand now about 5 per cent. higher than a year ago.' In other words, then, notwithstanding the great recovery in wool at one time during the year, the effect has not been to carry the price up to a point much beyond that at the beginning of the year. The turning of the tide has, however, been most important for the trade, and although prices are not much higher than they were a year ago, the feeling regarding them is altogether different. There is little apprehension now of continually falling prices, such as made the trade dull and depressed twelve months ago. There is no doubt also that the improvement has been due to a great increase in the consumption of woollen articles as compared with any previous year. It is calculated, it will be seen, that the home consumption of wool in 1886 was no less than 407 million lbs., against 366 million lbs. in 1885, and 365 million lbs. in 1884. There has also been an increase in the continental consumption and in the United States consumption at the same time. The importance of this lies in the fact that the course of business as regards wool is undoubtedly one of the most important things to watch in reference to the ebb and flow of general business. Economists calculate that, usually, after a long period of low prices for the chief articles of food and general consumption, a considerable effect ought to be witnessed in the consumption of the leading textile fabrics, and, particularly as regards the northern nations of Europe, of woollen fabrics. The low prices mean that the masses of the people generally, after supplying themselves with food and similar articles, have a larger surplus to spare for other things, and one of the directions in which that surplus is preferably spent is in the consumption of woollen fabrics. Wool, therefore, is very often one of the first things to improve when trade generally has begun to improve, and in few years has the experience been more significant than it was last year. The healthiness of the woollen trade at the present moment, after a long period of depression, is in every way remarkable, and is a striking confirmation of the theories which economists have been induced to form as the results of long business observation.

"In the other textiles there is not the same improvement as in wool. There has nevertheless been a considerable increase in the consumption of cotton both at home, on the continent, and in the United States, although the total consumed is still under that of the season 1882-83. Cotton fabrics, however, are not so material as regards a question of the improvement of the home trade as woollen fabrics are, although by itself the cotton industry is so important. On former occasions cotton has been the first of the textiles to show improvement; but it does not follow that because the improvement does not now begin in cotton, therefore it will not be as lasting. In fact, we are disposed to consider that the improvement in wool is even more promising than if the improvement had been first in cotton. In silk also there has been some improvement, showing that the surplus available among the masses for purchasing fabrics has really increased; while the unsatisfactory state of the linen trade is supposed to indicate more of a general change in the course of trade which is unfavourable to linen than any depression connected with the trade of the year. Jute has also been unsatisfactory for similar reasons, and also because of the unusually rapid development of the trade until within a year or two past, from which there is now a reaction. Generally there is nothing serious, in the facts as to other textile manufactures, to set off against the great improvement which has taken place in the woollen trade.

" *The Iron and Metal Trades.*

" The improvement in the iron trade from the low point touched in the course of the year has been almost as great as the improvement in wool, and in another way it is just as significant. While the improvement in wool appears to indicate an accumulation of surplus for expenditure in the hands of the masses, who have benefited by a long course of low prices, the improvement in iron and connected trades, as well as in the metals generally, would seem to show an accumulation of free savings for investment. Iron and other metals being largely used in the creation of fixed works—that is, in the investment of capital—an improvement in the iron and metal trades necessarily means that more savings are being made than at other times, and more capital is being invested. Part of the improvement of course may be due to the same cause as the improvement in the textile trades, particularly in wool, viz., the increase of the surplus available for miscellaneous expenditure in the hands of the masses; but it is no doubt also due very largely to the cause we have stated, namely, the accumulation of capital for investment purposes.

" What we find, then, as regards iron is that there has been a distinct recovery in price as compared with the low price touched during the year. Opening about 40*s.* in January, the price of Scotch pig warrants declined to 38*s.* 5½*d.* per ton in May, and the price at the end of the year rose gradually from that point to 44*s.* 6½*d.* per ton, a somewhat higher price having been reached since the latter date. Nothing could show more clearly the course of the market, and the facts, we need hardly say, correspond with what has been stated regarding railway traffics, imports and exports, the Bankers' Clearing House returns, and the improvement in the woollen trade, all of which events belong to the latter half of last year. In the result, although business in the iron trade seemed to fall off in the early part of the year, the estimated production at the end of the year for Great Britain, namely, 7,200,000 tons, is very little under the production of either 1884 or 1885, and is higher than that of any year before 1880. This result has taken place notwithstanding a gradual reduction in the number of furnaces in blast which went on all through the early part of the year, that reduction undoubtedly marking the culminating point of the crisis in the iron trade, and the improvement having been steady and rapid ever since. It is a most noteworthy circumstance, however, that the improvement is very largely due to the stimulus received from the United States market, where the annual production, it is estimated, has actually increased during the year from about 4 million tons to 5,600,000 tons. It is evident that the rapid construction of railways in the United States, which has been the cause of the improvement in the iron trade in former times, has been resumed, the calculation being that very nearly nine thousand miles of railways were constructed last year, compared with about three thousand miles only in 1885. Whatever the cause, however, there is undoubtedly an enormous increase in the production of pig iron in the United States, and the improvement in the iron trade there, notwithstanding the high tariff and other obstacles, has reacted upon the iron trade in this country, and stimulated a recovery from the low point of depression reached in the early part of the year. There have been other causes, we may allow, of improvement in the iron trade, but the conspicuous change has undoubtedly been in regard to the United States.

"In other metals there is hardly the same improvement, excepting tin, the price of which at the beginning of the year was about 92*l.* 5*s.* per ton, and at the end 99*l.* 10*s.*, the figure of 103*l.* having been touched in September. Lead, however, is no dearer, or very little dearer, at 13*l.* per ton, than at the beginning of the year, the price not having been much higher in the interval. Spelter is rather cheaper at 14*l.* 3*s.* 9*d.* per ton, than at the beginning of the year, and copper at 38*l.* 15*s.* per ton is also somewhat cheaper than at the beginning of the year, the price not having much changed in the interval. Quicksilver is exceptionally higher in price, but this is not an important enough change to qualify the fact that along with the improvement in iron, there has hardly been that improvement in metals generally which we should have expected.

"*Wheat.*

"Another trade in which there has been a great turn for the better, from the merchant's point of view, is wheat. In the early part of the year the *Gazette* average price was very low, ranging between 29*s.* 3*d.* at the end of February, and 33*s.* 2*d.* at the end of August, the price at the end of October being still as low as 30*s.* 3*d.* At the end of the year, however, the price touched—we are speaking now of the *Gazette* average—was 33*s.* 11*d.*, and since the present year commenced a somewhat higher figure has been touched, while the trade is hopeful as regards the continuance of steadily high prices. Other grains have not followed the same course, barley, oats, maize, and rice having almost all declined. A leading article of food like sugar has also declined during the year. Still, the recovery in wheat shows that at last, after many years of depression, the usual circumstances which bring about improvement in such cases are beginning to be present. Production on the one hand falls off, while consumption goes on steadily increasing, and so at last a state of affairs as regards supply and demand is brought about in which there is a sharp rise of price. It will be seen from the calculation in Messrs. Beerbohm's circular in the appendix, that there is a deficit of nearly ten million quarters in the estimated supply for the current season, as compared with the estimated consumption, and this deficit can only be made good, of course, by a greater pressure upon stocks than would otherwise take place, and perhaps by some slight check to consumption which may result from the rise in price. At any rate, the change in wheat indicates that a continued fall in price cannot be indefinite; that a turn is sure to come sooner or later; and that people should not reason about these matters in a panic. It will be seen from the table in the appendix also that some improvement has taken place in the latter part of the year in the prices of meat and butter, so that altogether there would seem to be no reason to believe in the indefinite continuance of prices for agricultural produce far below the cost of production. The cost of production, it must be remembered, is the determining factor in all such questions, and a great depression in the markets for a time below the cost of production is certain to be followed by a reaction. This reaction has already come in regard to wheat, with the result that many interests will undoubtedly gain, and a certain stimulus will be given to trade.

"As we pointed out last year, however, we doubt whether for agricultural produce, or for any other articles, prices can possibly go back to the level of ten or fifteen years ago. Whatever may be the cause of the fall of prices which has taken place, we do not see any possibility of a return to former prices, just because there is no such supply of the precious metals about the world either annually produced or in stock to support prices at a much higher level. Commodities have been multiplied relatively to the precious metals, and that means a fall in prices permanently, whether we ascribe this fall to what is called contraction of gold or to increased abundance of commodities. The change in relation is the important thing to note, and the resulting effect upon prices is undoubted.

"*The Money Market and Prices.*

"Owing to the state of prices a year ago, we referred specially to the question of the gold supply, and the course of the money market, as having undoubtedly a bearing upon the state of prices, and the course of events during the past year has further illustrated, we believe, the remarks which we then made. There is no doubt that the course of the money market has been most peculiar during the year, and such as to indicate what may be called a scarcity of gold. When trade is so depressed as it has been, the natural effect upon the money market should be a great accumulation of money in Lombard Street—that is of actual cash in Lombard Street, and a corresponding continuation of a low rate of discount lasting over very many months. After 1866, it will be remembered, the rate of discount in Lombard Street for nearly two years continuously was about 2 per cent., without a break. Lately there has been more depression than in 1867 or 1868, and but for some great change the rate of interest ought to have been equally low, and the accumulation of money, that is of actual cash, in Lombard Street equally great. It will be seen, however, on reference to the tables in the appendix, that all through the year the actual bullion in the Bank of England has been about 20 millions only, and rather under that figure than above it, while there has been little tendency for money to flow into Lombard Street. What cash there has been about has been wanted for various special purposes. The eastern countries of Europe, as they did in 1885, have been absorbing a little, possibly with a view to military exigencies before long. France has also been absorbing a little, possibly for similar reasons. The great absorbent, however, has been the United States, which became a gold monometallist country, in place of an inconvertible paper country, only ten years ago, and has since continued to absorb a large part of the annual supply of the precious metals. The amount it absorbs, apparently, has been unduly increased by the peculiarly awkward banking arrangements which have been established. But whatever the cause, the effect is to take away from Lombard Street a very considerable sum, which would probably have accumulated there, and caused a long continued reign of 2 per cent., such as has been frequently seen in former times of depression. In the past year the absorbing power of the United States has been so great that money has actually been exported from London and from Paris to the United States, and so, instead of a surplus in Lombard Street, there has been a deficiency, the final effect being that money at the close of the year, when a 2 per cent. rate might fairly have been expected, rose to 5 per cent. It would be useless here to go into details as to the cause of the demand in the United States. All that can be noticed is that on a broad view of the facts there is not so much gold about the world as there used to be ten years ago, and which in a time of depression like that of 1867 and 1868 caused the rate of discount in Lombard Street to remain for a long period at 2 per cent. only. Now, the money market is kept bare in the most singular way, and all operations based on the long continuance of low rates of money, including a good deal of speculation for the rise in the prices of commodities as well as of securities, are checked. The connection between the money market and the state of prices may not be very easy to trace; but it is quite plain that no 'boom' is now possible in commodities, for the very simple reason that a rise in prices would also imply a rise of wages, and an increase of the deposits in the banks, and of the volume of business generally; and there is not cash enough to go round to support such an increased volume of business. Only nominal values are concerned, and real business may increase even although nominal values do not increase. But the point to be kept in mind is that the present low level of prices is the result in the long run of the relation between the supply of cash and the supply of commodities, and unless cash becomes more abundant there may not be a rise to a much higher level. Prices undoubtedly will go up and down, and we believe that the tendency at present is towards advance; but the oscillations altogether will be at a lower level than formerly, and all people connected with business should make their arrangements accordingly. The expectation that prices may possibly go back to the high level of former periods is not practically well founded—there is, at all events, no immediate prospect of any such improvement in markets.

"What has happened last year shows, however, that although prices are not likely to go back to the former high levels, yet we may have good times as well as bad at the low levels which have been established. The all important thing for merchants is whether prices are rising or falling; and that there can be times of rising prices, even at the low levels which have been brought about, is now proved beyond all question. There is still room, as there was before, in these oscillations, for the merchant to make a profit.

"*The Prospects for* 1887.

"Summarising the prospect for the coming year, we cannot do better, we think, than repeat the words as used in an article in the *Statist* of 22nd January to the following effect:—

"'We are inclined to think that the indications of improving trade will strengthen as the year goes on. There seems to be no doubt that the usual causes of improvement when there has been a long period of depression and low prices are now present in unusual force. The depression and the low prices, on the one side, have checked production, and on the other side they have stimulated demand. The effect of the fall in iron, copper, and other metals would seem undoubtedly to have been to stimulate demand in all directions, and in the case of some articles to open up entirely new channels of consumption. The area of consumption, in other words, has greatly extended during this period of depression and low prices at the very time that to some extent production would appear to have diminished. This is the course that is not unusually followed in periods of depression, and which prepares the markets for a great spring upwards as soon as things take a turn. All at once, according to past experience, when the turn comes, those connected with the trade find themselves bare of stocks, become anxious to fill up their stocks, and so create an unusual demand, which suddenly takes prices up to a much higher level, by which in turn all those who are holders of stocks and who are otherwise connected with the trade profit. The one fact which appears at first sight to be contrary to this view of the circumstances of trade at the present time, viz., the increase of the visible stocks held of some articles—*e.g.*, copper and iron—is not really a contrary fact. When the turn is approaching, or begins to come about, it very often happens that there is some disposition among those most intimately acquainted with the markets to lay in stocks speculatively, so that the visible stock begins to increase; but the amount of this visible stock, in proportion both to the production and to the consumption, is after all very small, and the increase of it which takes place is still smaller in proportion. It is not really a great matter, and is not sufficient in any way to check the rise in prices which begins to come about from more powerful circumstances, while it is a sign that the shrewder people connected with the trade are anticipating improvement.

"'It is also in favour of the improvement of trade, from the merchant's point of view, that at the present time labour is very abundant, and there is little chance as yet of any check to the improvement being given by strikes and lock-outs. Working men have been impoverished by the long depression, and are likely to be more amenable to reason than they would be if they were richer, or had just come through a long period of prosperous employment. In other words, the present circumstances are favourable to the merchants' and manufacturers' profit, and they will be induced to go on with activity and enterprise, reaping the harvest which apparently can now be reaped after a long period of barrenness. The fact that long experience has shown merchants and business men that circumstances like the present are favourable to their profits, will be a fresh stimulus to activity and enterprise now that the turn has come.

"'Another circumstance in favour of improvement undoubtedly is the presence of larger free savings upon the stock markets than have been noticeable for several years. Towards the close of last year the issues of capital on the stock exchange were undoubtedly much larger than they had been for several years previously, and were much more freely subscribed, the whole being an indication that the free savings of the people are larger than they were; that there is money consequently for new things, and that there is therefore a margin of labour and capital formerly unemployed which can now be used. All this adds to the prosperity of the community, and makes it likely that the improvement which has now begun will go on and increase.

"'The one main factor "against things" is the dangerous political situation on the continent. The prospect which now seems so cheerful, if peace were only assured, is undoubtedly clouded to some extent by rumours and apprehensions of war. The improvement, however, seems to be setting in so strongly that it is not likely to be checked, we should say, by anything short of the actual outbreak of war. The apprehensions will be sufficient to check some sorts of speculative enterprise, and to prevent contracts being entered into for very long periods ahead; but trade is more hand to mouth than it was, and this hand-to-mouth trade seems likely to go on increasing in volume unless checked by some such incident as the outbreak of war. We are inclined to think, moreover, so far as trade is concerned, that although the outbreak of war would have a great effect, both immediately and while the war lasted, upon the prices of securities, yet the trade of a country like England, which is fortunate enough to keep out of quarrels and to stand neutral, would probably not be affected unfavourably at first by such an untoward event. Probably even it might be affected favourably for the moment, just as it was by the Franco-German war, through the check to manufacturing industry upon the continent opening a larger course to the markets here. The United States trade would also be affected favourably in the same way, and the trade of the world generally, which would all react in our favour. Still, the beginning of a great continental war would be the opening up a chapter of the unknown, and if it should be prolonged, as it is just possible, notwithstanding all the talk about wars in modern times being short, then the effect would undoubtedly be to arrest the progress of the present improvement in trade at a much earlier date than it would probably in the ordinary case be arrested. A prolonged European war would be a disastrous calamity in every way, from which, though we might ourselves keep neutral, we could not but suffer greatly on account of our many relations with the continent. The prices of securities especially would go down heavily; enterprise in every direction would be checked; some of our best customers would be impoverished directly and indirectly, and so on. Should peace, however, be preserved, there seems to be no reason why the present year should not be one of the most prosperous in our industrial annals.'

"The opinion thus expressed we still adhere to. Since the time at which we wrote the war alarms have rather increased than diminished; but business in itself has gone on improving, and seems likely to go on improving. The improvement is also a very strong one, and no amount of alarm or apprehension will stop it altogether, while the outbreak of war itself, although it might stop some speculation, would probably not at first check the improvement in business generally which is going on. It may be hoped, however, though it seems rather hoping against hope, that peace will be preserved, in which case there is every prospect that the year 1887 will be one of the most prosperous in the annals of British trade."

The following is the Index to the contents of the Supplement from which the foregoing is taken:—

Financial and Commercial History of 1886.

The Woollen Trade—The Iron and Metal Trades—Wheat—The Money Market and Prices—The Prospects for 1887.

Extracts from Trade Circulars.

(*Illustrated with Diagrams showing the Course of Prices, &c.*)

The Iron Trade—Engineering—Shipbuilding—Copper—Tin—Lead—Spelter—Coal—Chemicals—Tallow—Leather—Petroleum—Turpentine—Wood—Indigo—Shellac—Indiarubber. *Textiles, &c.*, Cotton—Wool—Silk—Linen—Jute—Hemp. *Food, &c.*, Wheat—Rice—Sugar—Tea—Coffee.

PAUPERISM.

Tabular Appendix.

BANK RETURNS—

Bank of England—Bank of France—Imperial Bank of Germany—Austrian National Bank—Bank of the Netherlands—Associated New York Banks.

Allotments of India Council Bills in 1886—Government Grants and Telegraphic Transfers—Indian Bank Rates—Public Revenue.

CLEARING HOUSE RETURNS—

London—Manchester—Settlings on the 4th of the Month—Stock Exchange Settling Days.

Exchanges and Bullion—Bank Rates on the Continent—Foreign Market Rates of Discount—Bullion—Savings Banks—Weekly Prices of Leading Public Securities during 1886—Prices of Leading Stocks—Foreign Trade—Failures of 1886—Railway Traffic of 1886—Railway Dividends—Prices of Wholesale Commodities.

V.—*Prices of Commodities.*

THE following has been received from Mr. A. Sauerbeck:—

In continuation of the figures published in the Statistical Society's *Journal*, September, 1886, I give the result of the past year and of the average of nine years, 1878-86, as compared with the standard period of eleven years 1867-77 (see pp. 592, 593, and 648 of the *Journal*):—

	Index Numbers, 1867-77 = 100.		Average Decline as compared with 1867-77.	
	Average, 1878-86.	1886 only.	Average, 1878-86.	1886 only.
			Per cnt.	Per cnt.
Vegetable food (corn, &c.)	81	65	19	35
Animal food (meat and butter)	97	88	3	12
Sugar, coffee, and tea	76	60	24	40
All food	86	73	14	27
Minerals	73	67	27	33
Textiles	72	63	28	37
Sundry materials	83	69	17	31
All materials	77	67	23	33
All forty-five commodities	81	69	19	31
Silver*	83	74·6	17	25·4

* See note to table on next page.

For the forty-five descriptions of commodities treated in my tables, there is now a depreciation of *at least* 19 per cent., as illustrated by the average prices of the nine years 1878-86. In

1886, taken by itself, the decline amounted to 31 per cent., as compared with 28 per cent. in 1885.

Making allowance for quantities according to the importance of each article in the United Kingdom on the average of the three years 1883-85, last year's index number would be 68·1 against 71·2 in 1885 (see p. 595 of the *Journal*).

The average index number for the ten years 1877-86 is 82 (see the dotted line in the diagram).

The decline in the price of silver is for the nine years 1878-86, 17 per cent., and for the year 1886, 25·4 per cent., though at its lowest point last year, 42*d.* per oz., it stood 31 per cent. below its former level.

Prices of Commodities.

nber of ce.			Average Prices.				Index Numbers, 1867-77 = 100.	
			1867-77.	1878-86.	1885.	1886.	1885.	1886.
0	Silver	d. p. oz.	58¼	50½	48⅝	45⅜	79·9*	74·6*
1	Wheat, English gazette	sh. p. qr.	54½	40½	32/10	31	60	57
2	" American	"	56	44½	35	35	62	62
3	Flour, town made white	sh. p. sack	46	35	29	28	63	61
4	Barley, English gazette	sh. p. qr.	39	32	30/1	26/7	77	68
5	Oats "	"	26	21½	20/7	19	79	73
6	Maize, American mixed	"	32½	25½	23	21	71	65
7	Potatoes, good English	sh. p. ton	117	103	75	80	64	69
8	Rice, Rangoon cargoes	sh. p. cwt.	10	8¼	7	6/7	70	66
-8	Vegetable food (corn, &c.). Total		—	—	—	—	546	521
9	Beef, prime	d. p. 8 lbs.	59	56½	52	49	88	83
0	" middling	"	50	47½	44	42	88	84
1	Mutton, prime	"	63	66	56	62	89	98
2	" middling	"	55	54½	47	52	85	95
3	Pork, average	"	52	49½	45	45	87	87
4	Bacon, Waterford	sh. p. cwt.	74	72	68	67	92	91
5	Butter, Friesland, fine to finest	"	125	117	111	100	89	80
-15	Animal food. Total		—	—	—	—	618	618
6A	Sugar, West Indian refining	sh. p. cwt.	23	17½	13½	11¾	59	50
6B	" beet, German, 88 p. c. f.o.b.	"	24	18½	14¼	11¾		
7	" Java floating cargoes	"	28½	22¼	17½	14¼	62	50
8A	Coffee, Ceylon plantation, low middling	"	87	76	60	68	69*	78*
8B	" Rio, good channel	"	64	49	39	46	61*	72*
8	" total		—	—	—	—	65	75
9A	Tea, Congou common	d. p. lb.	11¼	6⅞	6½	6½	58*	58*
9B	" average import price	d. & dec. per lb.	17¼	13	12·06	11·81	70*	69*
9	" total		—	—	—	—	64	64
-19	Sugar, coffee, and tea. Total		—	—	—	—	250	239
-19	Total food		—	—	—	—	1,414	1,378

* Figures not included in the general average. Silver compared with 60·84*d.* per ounce ng the parity between gold and silver at 1 : 15½.

Prices of Commodities—Contd.

Number of Article.			Average Prices.				Index Numbers, 1867-77 = 100.	
			1867-77.	1878-86.	1885.	1886.	1885.	1886.
20	Iron, Scotch pig	sh. p. ton	69	46½	41/10	39/11	60	58
21	,, bar	£ p. ton	8¼	5⅝	4⅞	4⅝	59	56
22	Copper, Chili bars	,,	75	57	43	40	57	53
—	,, English tough cake	,,	81	61½	47	44	—	—
23	Tin, Straits	,,	105	86	87	98	83	93
24	Lead, English pig	,,	20½	14⅛	11⅝	13¼	57	65
25	Coals, Wallsend Hetton in London	sh. p. ton	22	17	16½	16	75	73
26	,, average export price	,,	12½	9	8·95	8·45	72	68
20–26	Minerals. Total		—	—	—	—	463	466
27	Cotton, middling Uplands	d. p. lb.	9	6⅛	5⅝	5⅛	62	57
28	,, fair Dhollerah	,,	6¾	4⅜	4¼	3$\frac{9}{16}$	63	53
29A	Flax, St. Petersburg 12 head best	£ p. ton	47	33½	34	35	73	75
29B	,, Russian, average import	,,			35	35		
30A	Hemp, Manilla fair roping	,,	43	35½	35	29	82	74
30B	,, St. Petersburg clean	,,	35	26½	29	29		
31	Jute, good medium	,,	19	15¼	12	11½	63	61
32A	Wool, merino, Pt. Phillip, average fleece	d. p. lb.	21¼	18¾	16½	15½	73	70
32B	,, merino, Adelaide, average grease	,,	9⅞	8½	6¾	6⅝		
33	,, English, Lincoln half hogs	,,	19¾	11¾	9⅞	10	50	51
34	Silk, Tsatlee	sh. p. lb.	23	15	12¾	13¾	55	60
27–34	Textiles. Total		—	—	—	—	521	501
35A	Hides, River Plate dry	d. p. lb.	9	8¾	8¾	8	95	85
35B	,, salted	,,	7	6¾	6½	5¾		
36	Leather, crop hides, 30—45 lbs.	,,	16	15	15	15	94	94
37A	Tallow, St. Petersburg Y.C.	sh. p. cwt.	45	42	38	31	76	63
37B	,, town	,,	45	36½	30½	26		
38	Oil, palm	£ p. ton	39	33½	30	24	77	61
39	,, olive	£ p. tun	50	40½	39	38	78	76
40A	,, linseed	£ p. ton	30	23½	22	20½	73	69
40B	Seeds, linseeds	sh. p. qr.	60	46½	44	42		
41	Petroleum	d. p. gall.	12½	7	6⅞	5⅞	55	47
42	Soda, crystals	sh. p. ton	92	64	55	49	60	53
43	Nitrate of soda	sh. p. cwt.	14	12¾	10½	10	75	71
44	Indigo, Bengal, good consuming	sh. p. lb.	7¼	6	5¼	5	72	69
45A	Timber, hewn, average import	sh. p. load	60	48	48	43	81	76
45B	,, sawn or split, average import	,,	54	48	45	43		
35–45	Sundry materials. Total		—	—	—	—	836	764
20–45	Total materials		—	—	—	—	1,820	1,731
1–45	Grand total		—	—	—	—	3,234	3,109

VI.—*The Decline of the French Population* (a translation).

We extract from the *Journal des Economistes* of December last the following remarks respecting the decline of the French population. It will be seen that the writer of the article, M. G. de Molinari, whose well known acquaintance with the subject entitles him to speak with special authority upon it, entertains a favourable view of the falling off in population, and his paper forms a valuable contribution to the many discussions which have taken place from time to time upon the question:—

The reproduction of the human species in common with all other branches of production, is characterised by a constant tendency to keep pace with consumption, or in other words to maintain itself in a position to meet the requirements of the market that may be open to it, and this is unquestionably the case among the populations of countries in which the unfortunate law of slavery is established. In the Southern States of the American Union before the abolition of slavery, the breeders of "human cattle," if we may so term them, regulated its reproduction much in the same way as cattle breeders regulate the production of their horses, oxen, or sheep, according to the requirements of the market. In Russia the nobles acted in the same way before the emancipation of the serfs; they granted or refused permission to the peasants to marry according as the number of persons engaged upon the cultivation of their land was in their opinion insufficient or superabundant. But when it becomes a question of a free population, can the same tendency be said to exist? Has not a free population rather an irresistible tendency to exceed the means of subsistence, or in other words to overstock the market? If this be so, the condition of the human race would indeed be a most unfortunate and most miserable one, and very little purpose would be served by endeavouring to devise measures for its improvement, for if by any means new markets were opened up, and labour thereby commanded higher wages, we should inevitably find that the multiplication of the human species would increase even more rapidly. The consequence would be that the markets would again become encumbered, until the repressive checks of which Malthus spoke, namely, vice and misery, had combined to maintain the equilibrium between population and the means of existence.

This alleged irresistible tendency of the principle of the increase of the population to exceed the means of subsistence rather than to fall below it, has however no more real existence in fact, than the tendency to over-production of which the socialists so bitterly complain, and for which they so virulently attack capitalists. It certainly happens that the population throws more labour on the market than can be employed, just as it may occur that more sugar or textiles, for example, are produced than can be disposed of at a profit; but it would be idle to suppose that this accident in any way weakens the natural law of equilibrium which governs production and consumption. In virtue of this law, and in spite of accidental circumstances, the equilibrium has a tendency to re-establish itself more rapidly when the difference between the supply and the demand is greatest. A fall in the wages of labour, in the price of sugar or dry goods, by ruining a certain number of producers, renders it impossible for them to continue producing, consequently the supply diminishes, prices rise, and frequently attain a figure which is considerably higher than the ordinary remunerative rate; then production is again stimulated, stocks increase, and prices fall; but all these fluctuations operate in bringing prices to a level which not only covers the cost of production, but renders it remunerative.

Man is undoubtedly impelled to increase his species by very different motives to those which influence him in manufacturing sugar or cotton goods; but are these motives powerful enough to incite him to bring into the world a superabundant population, when he is a free agent in exercising the power of reproduction? Malthus appears to think so, and some of his disciples have even exaggerated this pessimist tendency. It should however be added, that when Malthus wrote his *Essay on the Principles of Population*, the facts which he had before him certainly, as regards England, appeared to justify his opinion. The population, encouraged by the poor laws, increased in excess of the means of subsistence, and large charitable contributions neutralised in this respect the natural effects of a reduction of wages. Malthus protested with reason against these artificial encouragements, and one of his best titles to public recognition lies in his having initiated the reform of poor law legislation.

But if there are physiological motives which impel man to increase beyond the requirements of the market, there are, on the other hand, economic reasons which operate in a widely different manner, and which at times are sufficiently powerful not only to neutralise the effect of the physiological motives, but also to prevent the population multiplying to such an extent as to be entirely disproportionate to the needs of the market, and this is a phenomenon with which we are brought face to face in France. The falling off in the French population has been constant since the commencement of the century.

According to a return prepared by Dr. Bertillon, the number of births in a population of 10,000 fell to 325 in 1801-10, to 316 in the period comprised between 1811-20, to 309 in 1821-30, 289 in 1831-40, 274 in 1841-50, 267 in 1851-60, 264 in 1861-68, and to 245 in 1869-80. That this falling birth-rate has been unequal to the "demand" is clearly evidenced by the increasing importance of foreign immigration taken in conjunction with the insignificance of French emigration. In the year 1851, according to a recent publication by M. de Nadaillac, entitled, *L'Affaiblissement de la Natalité en France, ses causes et ses conséquences*, the number of foreigners established in France amounted to 392,824; in 1866 to 635,495; in 1872 to 740,667; in 1881 to 1,001,890, exclusive of naturalised foreigners, who numbered 77,046. These foreigners comprised 432,265 Belgians, 240,733 Italians, 81,896 Germans, 73,781 Spaniards, 66,281 Swiss, and 37,006 English. The emigration during the same period was comparatively unimportant, as the total number of foreigners settling in France did not exceed 40,000. A reference to the following table will show the actual number of emigrants who left France in each of the years from 1873 to 1884 inclusive:—

Years.	Number of Emigrants.
1873	6,832
'74	6,385
'75	3,785
'76	2,591
'77	3,348
'78	2,313
'79	3,625
'80	4,607
'81	4,456
'82	4,858
'83	4,011
'84	6,100

As regards the volume of immigration, it increased the French population during the same period by 260,000 persons. It is therefore justly asserted that the increase in the French population is considerably below the requirements of the market, and this is a phenomenon not only interesting in itself from a scientific point of view, but one which opens up numerous questions of considerable importance. It behoves us to study the causes of this phenomenon, and to inquire into its effects, and also to consider if these effects are beneficial or the reverse; and if the latter, to endeavour to devise means for remedying the evil. In common with all remedies, they may be natural or artificial, efficacious or inefficacious, and even hurtful.

We will proceed first to devote some consideration to the question of the causes of this phenomenon. It is a very true observation that M. Maurice Block makes in his scientific work entitled *Traité théorique et pratique de Statistique*, to the effect that economic phenomena have very rarely a single cause. The causes of the falling off of the French population are numerous, and they may be separated into two categories, natural causes and artificial causes, and the question arises should the weakness of the productive power be placed in the first or second category? The alleged feebleness does not appear to us to be in any way conclusively proved. For example, in Canada the French race has, during the last century, shown itself to be the most prolific in the world, as we find that 60,000 peasants who were left there in 1763, have produced in a little over a century 2 million of souls. The Anglo-Saxons even have not shown such a result as this, and it may, we think, be confidently affirmed that the inhabitants of France, assuming that the economic conditions were the same in the mother country as in Canada, would have proved themselves equally prolific. We may then put on one side the physiological cause. Moreover, this cause is of considerably less importance in the question of population than many appear to imagine, and the same may be said of motives of religion or affection, to which opinion attributes a preponderating influence. The principal causes which operate in increasing or diminishing the reproduction of the human species are essentially economic ones. It is, on the one hand, the greater or lesser cost of production or expense of maintenance until the child attains a producing age, and, on the other hand, the more or less advantage that can be derived from them. When the rearing and education of a child cost comparatively little, and the child can at an early age be put to some profitable work, agricultural or industrial, and thus procure a sum in excess of the cost of maintenance, large families may with impunity be brought up. It is for this reason that in districts where the population is devoted to the tilling and cultivation of the soil, occupations which give employment to a vast number of people, or again in places where factories employ a large number of hands, the birth-rate is considerably in excess of the death-rate; as, for example, in the department of the Nord, where in 1883 the births amounted to 51,197, against 35,083 deaths; while in districts where the population is chiefly engaged in the rearing of cattle, it is precisely the reverse. As a proof of this we may quote the case of the department of the Eure, where in 1883 the population returns showed an increase of 6,842, against a loss of 8,128 by death. This phenomenon has been commented upon from time immemorial, and fifty years ago Sir Francis d'Ivernois called attention to the slow increase of the population in the pastoral districts of Normandy.

This natural cause, however, which partly explains the difference in the increase of the population from one region to another, does not account for the general and constant lowering of the birth-rate since the commencement of the century. And here come into play the artificial causes, such for example as the enhanced cost of living, resulting from increased taxation and protective duties, the conscription, and later the military service, the legislation affecting the employment of children in factories, and the expenses of education, which are not compensated for by the practical quality of the instruction given. It is very difficult if not almost impossible to accurately gauge the influence exercised by each of these causes, but the most powerful factor is undoubtedly the increased cost of provisions, which has augmented the expenses incurred in the rearing of children. And here we may observe that the diminution of the birth-rate was less marked during the period following the conclusion of the treaties of commerce, and the *quasi* suppression of the corn and cattle duties; from this we may reasonably conclude that a return to agricultural protection could not fail to be productive of the contrary effect. The greater the cost of maintaining children, the fewer will be reared, and the worse they will be nourished. The other indirect taxes, including even the duties on alcohol, produce an effect similar but less apparent; children certainly do not consume spirits, but their parents frequently do, and the more money that is spent in the purchase of drink, the less there is left to feed and maintain their families; so that it resolves itself into this, that this particular tax, which is such a favourite one with budget framers and philanthropists, instead of improving the moral condition of the fathers, has rather the effect of starving the children.

The conscription, and more particularly the system of general and enforced military service, by taking from a family the most vigorous of its young members at the time when they have arrived at a productive age, and are in a position to recoup their parents the expenses that have been incurred in rearing and maintaining them, operate in the same direction, and with a particular intensity during the period of revolutions and great wars. It is the same thing with the legislation limiting the age at which children may be employed in factories, and their hours of labour, salutary as this legislation otherwise undoubtedly is. It is the same with the useless, if not positively injurious system of instruction so much in vogue at the present day, which, while increasing the cost of the education of the middle classes, at the same time renders them less fitted to make their way in the world.

To these causes, and to many others which have operated with an increasing tendency since the end of the last century to check the multiplication of the human species, must be added those which have been instrumental in demoralizing both physically and morally the French race. Physical degeneration resulting as much from the conscription, the forced military service, as from prostitution and ill assorted unions, is attested by the increase in the number of young men who are declared unfit for military service. On this point M. Maurice Block, in his *Traité théorique et pratique de Statistique*, says, "according to the returns of the recruiting of 1875, out of 283,768 young men who were inscribed upon the registers, 29,797 were rejected as being completely unfit for service—a proportion of more than 10 per cent. In addition to this, 21,959 recruits were sent to the auxiliary services, and 19,508 were sent to be examined at some future occasion; and many of the latter would act very wisely in not marrying. It may be added that there are vast numbers of young men in France, who although passed as fit for military service, ought unhesitatingly to be rejected on account of weakness of constitution."

Again, M. de Nadaillac, in his *Affaiblissement de la Natalité*, says, "The mortality among young men between the ages of 20 and 25 in France is exceptionally high. This is a phenomenon which is not observable among any other nations, and as it is clearly evidenced by the returns relating to the whole of the department, it is difficult to believe that it can be produced by anything but the exigencies of military service. The army, even leaving out of consideration the circumstances of war, is one of the most powerful causes of the impoverishment of the race, and it may be added, of all the European armies the French contains the largest proportion of invalids, for while in Prussia or Italy the daily average of invalids is as high as 40 in every 1,000, in France it exceeds 46, and the death-rate is even higher, being at the rate of 6 per 1,000 in Germany, and 10 per 1,000 in France.

"Tuberculosis, typhoid fever, and dysentery are as much to be dreaded as the fire and sword of the enemy, and have wrought as much mischief, and the death roll of the French soldiers who succumbed to various maladies in the Crimea and in Italy, during the campaign of 1870-71, or in Tonkin, is unquestionably a very long and sad one. One of the causes of the excessive mortality among our young soldiers is undoubtedly the weakness of the constitution of the men who are called to serve under the flag. I have frequently expressed my strongest disapproval of the fatal tendency to swell the numbers of our army, to strive after quantity at the expense of quality. Young men have frequently been declared fit for military service, when their thoracic development left much to be desired, and their height was barely up to the minimum standard. These weak and frail individuals are subjected to severe discipline and excessive work, work harder in many cases than they have ever been put to in their lives, and under which they frequently break down. Again, the living is not that to which many have been accustomed; the food given is even in a vast number of cases insufficient to nourish their enfeebled frames. On this point I may observe, that official documents relating to the period comprised between the years 1727 and 1789 show that the quantity of rations supplied to each soldier averaged 182 kilograms a-year. At the present time this quantity is reduced to 100 kilograms—a reduction of nearly one-half. To sum up, the inhabitant of the rural districts is suddenly transported to an industrial centre, which is in itself an unhealthy change for him; the inhabitants of the towns, those which are large manufacturing centres especially, are too weak to undertake the arduous labours of a military life, they are unable to bear the fatigues of long marches, and it is to this cause which may in great measure be attributed the crowded state of our hospitals, the excessive mortality, and the weakening of the vital forces of the nation."

It may of course be urged that these causes of depopulation are not confined to France alone, but are to be found in almost every country; that the increase of expenditure and taxation is universal; and that the system of protection and enforced military service exists everywhere throughout Europe with the exception of England. But when we examine the condition of each individual country, we are enabled to estimate at their true worth the favourable causes which have neutralised or retarded the action of the depressive causes. In Russia, the abundance of her natural resources; in Germany, the suppression of her internal customs dues. Finally, in studying the aggregate returns of the movement of the population, we are forced to the conclusion that these favourable causes are gradually becoming less powerful, and that the falling off in the population of which France has so grievously to complain will soon become universal. Take Germany for example; we find in this country that the annual increase, which averaged 550,993 during the period 1875-84, had fallen to 321,301 in the year 1885, and in England, according to the Registrar-General's returns, the number of births show an equal tendency to diminution, and in Russia the falling off is even more marked, for we find that from 1815 to 1835 the annual increase of the Russian population was in the proportion of 1·44 per cent., from 1835 to 1856 1·21, and from 1858 to 1883 in the ratio of 1·14 only. The same phenomenon is observable in the old States of the American Union, and this is sufficient to show us on what a slender basis any predictions as to the development and future proportion of the forces of various States founded upon the comparative returns of the birth-rate are built up. It is assumed that the population must continue to increase everywhere in the same proportion, while as a matter of fact the rate is essentially a variable one. It is as ridiculous to attempt to predict what will be the number of French, Germans, and Russians existing at the end of the twentieth century, as it would be to foretell the number of horses, oxen, and sheep.

Coming next to the question of its effects, it may be asked what, in an economic point of view, that is from the point of view of the development of wealth and power, is the condition of a country in which the reproduction of the race is insufficient for the requirements of the markets, and in which the deficit is made up by immigration? Is the condition worse or better than that of a country where the population increases too rapidly and becomes superabundant, and where the excess is removed by emigration, aided by an increasing mortality? To this question politicians, and even very many statesmen and physicians, unhesitatingly reply, that the insufficiency of the human production is one of the greatest evils, and that immigration is one of the most fatal remedies. "Of the grand *rôle* that France has played in the past," says M. de Nadaillac, "of the decisive influence which she has often exercised in the direction of races, what will remain? We cannot pretend to ignore what will be the intensity of the struggles which await the generations who will take our place, or the greater efforts that each nation will have to make to maintain its political and economic supremacy." "It is the stranger who fills our gaps," said Dr. Rochard, "and this introduction into our midst of elements frequently hostile is an invasion in disguise; it is a menace for the future. A race which is obliged to recruit its forces from amongst others speedily loses its commerce, its character, its manners, and its individuality." Without pretending that the insufficiency of the human production is an unmixed blessing, and that we should applaud the obstacles to which it is due, and foster them with care, we incline to the belief that it is by no means so great an evil as a superabundance of the population; we may add that immigration, which is a consequence of it, appears to us more favourable than emigration to the development of the wealth and power of the country.

In countries of immigration, such as France and the United States, the majority of the population are unquestionably in easier circumstances than the inhabitants of those countries from which the supplies of immigrants are drawn. For it is evident that emigrants do not leave their native land with the idea of living less comfortably in a foreign country. They leave it rather with the object of improving the conditions of their social and material well-being, or with a view of obtaining a better field for the employment of their capital. What then are the effects of the migration from the point of view of the interests of the countries of emigration and immigration? or to confine the question within narrower limits, does foreign immigration result in a gain or loss to France?

Unfortunately there is an absence of statistical data relating to the ages and profession of the thousands of strangers who bring into the country their labour and capital, or who come to spend their money in France. It is however an established fact that the majority of the immigrants have arrived at a productive age, and this majority is largely composed of Belgian, Swiss, German, Italian, and Spanish labourers and artisans. Those foreigners with independent means who reside with their families in Paris, Nice, &c., constitute a relatively insignificant minority; and the most determined opponent of immigration will hardly complain, any more than the hotel keepers and shop keepers, of the preference given to France by the English, American, or Russian moneyed classes who come to spend their incomes in the country.

It is the invasion of the mass of adult workmen, stigmatised by the socialist writer M. Jules Guesde as "robbers of national labour," which excites the apprehension of Doctor Rochard. But supposing that instead of importing this million of adult workmen who have come to make up the deficit in the population, France had reared them herself, what, may it be asked, would it have cost her? To obtain a million of men twenty years of age, about 1,300,000 children must have been born into the world, and what is the average cost of rearing, education and maintenance of a child and an adult until he reaches the age of 20? According to an estimate made by M. Maurice Block in his *Traité théorique et pratique de Statistique*, every child under the age of 5 costs the community 400 frs. a year; each youth from 5 to 20 years of age, after making allowance for the value of his labour, costs 100 frs.; while every individual male or female from the age of 20 to 60, is estimated to produce about 1,000 frs., and each person of 50 and above, deduction being made of the expenses to the community of persons over 70 years of age—200 frs. Leaving on one side the amount, which, by no means inconsiderable, would be expended in the maintenance of 300,000 children dying at various ages before the attainment of their twentieth year, and which would be entirely lost, and only taking into account the charges incurred in rearing and educating the million of adults, we arrive at the enormous total of 3,500 million frs. It results therefore that a sum of 3,500 million frs. has been saved by France importing work people already grown to a productive age instead of rearing them herself, and has not this again contributed to a great extent to the expansion of "a public and private wealth such as the world has never known?" Without wishing to establish any invidious comparison between the human race and cattle, is it not evident that if France had received from neighbouring countries a million of oxen *gratis* to make up for the deficiency of her live stock, she would have benefited very considerably at the expense of Switzerland, Belgium, &c., where the cattle had been reared?

It is true that a certain number of these immigrants return to their native country, and fewer would probably return were the naturalization laws a little more liberal, but for the most part they do not leave until the decline of their productive faculties, and in the meantime they have created in France an aggregate of wealth superior to the aggregate of the wages they received there, and this must naturally be so, as otherwise the labour would neither have been required nor paid for. Is it just to accuse them of demoralizing the native population to the extent of making them lose their "character, their manners, and their individuality?" The mixture of races has never been considered, that we are aware, as a cause of deterioration, and it would be idle to pretend that the invasion of the Franks into Gaul, and the Normans into England, had compromised the future of these two countries. It is hardly necessary to add, that one of the principal causes of the superiority of Parisian industry is in great measure to be attributed to the crowd of work people of every nationality who bring into the great centre of production the assistance of their particular aptitudes and of their versatility of genius.

We will now compare the condition of affairs in France and that existing in a country of emigration such as Germany. In the latter country the number of transatlantic emigrants leaving during the period comprised between the years 1871 and 1884 rose to 1,309,272 persons, while immigration into Germany is relatively insignificant. There can be no question that, in a country where there is an excess of population or in which the production exceeds the requirements of the home markets, emigration is beneficial; it removes the surplus labour which overstocks the markets and depresses wages. It is a remedy for the evil of superabundance, but at the same time it is a very expensive remedy.

According to the estimates we have already formed, 1,300,000 emigrants would represent in cost of rearing and education a capital of 4,550 million frs., to which must be added the value of the property that these emigrants would take away with them, and which at the lowest may be estimated at an average of 100 frs. a head. This therefore would represent a sum of 6,000 million frs. lost to Germany in the space of fourteen years. A certain number of emigrants might of course be under 20 years of age, but, on the other hand, it must be borne in mind that the 1,300,000 emigrants to which we have referred only represent the transatlantic emigration, while thousands of Germans—and of these nearly all are adults—annually leave their native land to seek new homes in the neighbouring countries of France, Belgium, Holland, and England. It must also be remembered that an aggregate of 1,300,000 emigrants implies a number of births greater by one-fourth (of every 100 persons born in Prussia, 26·11 per cent. die before attaining the age of 20, while in France the mortality is only represented by a proportion of 21 per cent.), and that in estimating the general difference in the rate of mortality and consequently in the capital expended for each child, and which is lost to the community, it will be found that the amount lost to Germany during the space of fourteen years, is considerably over than under the 6,000 million frs. at which we have placed it.

Will it be said that this drain has not only the effect of relieving Germany of her superabundant population, but that in dispersing the German race over the face of the habitable globe, it has the effect of increasing the power of Germany, and contributes to a very vast development of German commerce? We are of opinion that on those two points considerable misapprehension exists. There are certainly many Germans in the United States, but the English race, old and new, is much more largely represented. It is essentially British emigration that has made the United States, and can it be seriously urged that the power and wealth of England has thereby benefited? If instead of flowing to the United States, the current of German emigration were directed to the colonial possessions of the mother country, it would no more contribute to an augmentation of the power of Germany, than British emigration to the English colonies, which afterwards became the United States, has contributed to the wealth and power of England. As long as the colonies are poor and weak, as long as they are unable to meet their expenses, they are tolerably well satisfied with the connection existing between them and the parent state, and any proposal for their dissolution would be considered as not only ill-timed but absurd; but when they feel sufficiently strong to govern and to protect themselves, they at once strive to become independent, and, as a rule, do not display too much generosity in their future dealings with the mother country. They refuse to receive its productions, as Australia and Canada, which are partly emancipated, are now doing, and do not scruple to declare war, as the United States has on more than one occasion been on the point of doing with England. Does then emigration to national colonies or to foreign countries really contribute as much as is pretended to the development of foreign commerce? On this point we cannot do better than look into the trade of France and the United States, both countries of immigration, and that of Germany, a country of emigration, and if we compare the returns, we shall find that there is no appreciable difference in their development.

It is only within the last two or three years that the trade of Germany has commenced to exhibit a more rapid development than that of France, and we may add that, from the point of view of the extension of influence, there is an emigration which is more prolific than that of man, the emigration of capital. France, like Holland and Switzerland, exports more capital than she imports, and by thus acquiring property abroad, together with the influence which is naturally attached to property; in participating in the administration of railways, mines, and other industrial enterprises that she establishes in foreign countries, she certainly gains more influence, and creates for herself relations infinitely more favourable to her commerce than if, like Germany, she confined herself to supplying other lands with copying clerks, writers, and scavengers.

It is however urged, and from a military point of view at least, insisted upon, that the superiority in the rate of increase of the German population gives Germany an immense advantage over France. Is this really the case? Whilst foreign immigration has effected for France a saving which at the very lowest estimate must be placed at 3,500 million frs., the constant drain of emigration has deprived Germany, during a period of fifteen years, of a sum of more than 6,000 million frs. While France receives, without having to bear the necessary expenses of raising it, the annual tribute of vital power from neighbouring countries, Germany on the contrary, has had to provide for the expenses incurred in rearing, educating, and maintaining the hundreds of thousands of able-bodied persons who assist in augmenting the producing power of foreign countries. The latter has impoverished herself to the extent of 6 milliards, while France has enriched herself by 3½ milliards, and if the former country has not been more weakened, it is because she possessed in the interval an economical government, and one which devoted considerable attention to husbanding the resources of the population; but she will, in all probability, soon lose even this slight advantage, for the protectionist policy of Prince Bismarck has increased the burdens of the majority of the population, at the expense of a minority composed of landed proprietors and manufacturers. The increase of the standing army in time of peace will not fail to produce a similar effect. But, it may be asked, is it not with men that war is made, and is there not abundant evidence to testify to the fact that the victory remains always with the big battalions? True, but to put these big battalions into the field, to train, feed, and provide them with the costly equipments, what is necessary? A large expenditure of money. It is only in exceptional cases that a struggle between one great nation and another is decided in a few weeks, or even a few months, and when it is prolonged the victory always remains with the nation that possesses the most money. For example, Napoleon commanded a much larger army than the English, the Czar Nicholas disposed of more men than France and England, the secessionists of the Southern States, at the commencement of the struggle, had a much larger army than the Northerners. This, however, did not prevent the Emperor Napoleon, the Czar Nicholas, and the Southern States of the American Union, from being defeated. They were vanquished by capital. It is evident, therefore, that more capital and fewer men should be produced, and that is the reason why, from a military point of view, the countries in which there is a deficient population, and where the gaps caused by it are filled up by immigration, are in a position far more favourable than those where the population is superabundant, and where the excess is removed by emigration, and an increased rate of mortality.

We come next to the question of the remedies to be employed in checking the alleged depopulation. Although prudential consideration in the matter of population has had a visible effect in France in raising the standard of material well-being, and notwithstanding the fact that the wealth and power of the country, in the same way as in the United States, has been greatly augmented by the constant influx of healthy and adult immigrants, yet there are to be found politicians, doctors, statisticians, and even economists, who profess to be grievously alarmed at the present condition of affairs, which they speak of as lamentable in the highest degree, and they predict the inevitable and speedy decadence of France unless measures are promptly devised for remedying the evil.

But the question arises, how is the existing state of things to be changed? What steps must be taken to encourage Frenchmen to multiply more rapidly, and to become like the Germans a people capable of furnishing ample contingents to emigration? There is only a very limited choice of methods to be employed. It might of course be possible if not to prohibit the introduction into the country of foreign workmen, at any rate to subject them to a tax more or less prohibitive; it may be done by encouraging persons to exercise less prudence and forethought in the formation of matrimonial connections, or again in the case of married people by the neglect of the influence of moral restraint, by giving a bounty to those who bring up the largest families, or by imposing a tax on celibacy.

These various measures of artificially encouraging the principle of increase have each of them their partisans The establishment of a tax on foreign workmen appears however to be the one most in favour at public meetings, it having formed the subject of numerous proposals submitted to the legislature. For example, at a public meeting held at Arles on the 7th November last, a resolution protesting against the invasion of foreign workmen was carried unanimously. At this meeting the chairman suggested that the Government should be petitioned to impose a tax of 20 frs. a head on each foreigner settling in the country; that foreign workmen should be excluded from all public works; that the number of foreigners employed by companies subsidised by the State and by private employers should be reduced; and finally, that a quadruple tax should be imposed on aliens who have resided over five years in the country.

Let us now briefly consider these suggested remedies. In the first place, what would be the effect of a tax on foreign workmen? It would undoubtedly result in restricting the number arriving in the country, and in increasing by the amount of the tax the general standard of wages. This effect of a protective duty is produced sooner or later, but it invariably manifests itself first when the article taxed is one of prime necessity, and secondly, when the home production of this article is insufficient for the consumption. This is what renders the duties on corn and meat so particularly objectionable. The primary effect of a duty protecting "national labour" would therefore be to raise the standard of wages in France, and at the same time to encourage the multiplication of the wage-earning classes to the delight of the philanthropists, protectionists, and populationists. It is hardly necessary however to add that their joy would be short lived. This first effect of the principle of protection would inevitably bring in its train another which would operate in a totally different direction. The artificial raising of wages would complete that which the return to agricultural and industrial protection had only commenced: it would increase the cost price of all products, and would render French industry less able to compete with its rivals on foreign markets; its outlets, already restricted, would be still further contracted; the production would diminish, and with it the demand for labour; wages would fall to their old level, and probably even lower; and if, in the interval, protection and high wages had induced an increase of births, an increase of privation and of mortality would speedily disembarrass the market of this useless supplement. It would be the crisis which appears everywhere and always as the second result and the reverse side of the medal, of protection.

This inevitable crisis, the fiscal measures having for their object to render marriage obligatory, would contribute to aggravate the evil of it, admitting that they had any efficacious result, and they would inevitably contribute to bring about a deterioration in the quality of the population. The principal causes which are instrumental in restraining men from marrying are admirably analysed in Herbert Spencer's *Social Science*, in which the following passage occurs:—

"We have but to consider the circumstances which in many cases determine marriages, and those which in other cases prevent marriage, to see that the connection which the figures apparently imply is not the real connection. Where attachments exist, what most frequently decides the question for or against marriage? The possession of adequate means. Though some improvidently marry without means, yet it is undeniable that in many instances marriage is delayed by the man, or forbidden by the parents, or not assented to by the woman, until there is reasonable evidence of ability to meet the responsibility. Now of men whose marriages depend on getting the needful incomes, which are the most likely to get them? The best, physically and mentally, the strong, the intellectually capable, the morally well balanced. Often bodily vigour achieves a success, and therefore a revenue, which bodily weakness, unable to bear the stress of competition, cannot achieve. Another influence tells in the same direction. Marriage is not altogether determined by the desires of men; it is determined in part by the preferences of women. Other things equal, women are attracted towards men of power, physical, emotional, intellectual; and obviously their freedom of choice leads them in many cases to refuse inferior samples of men, especially the malformed and diseased, and those who are not developed physically and mentally. So that, in so far as marriage is determined by female selection, the average result on man is that while the best easily get wives, a certain proportion of the worst are left without wives. This influence therefore joins in bringing into the ranks of married men those most likely to be long lived, and keeping in bachelorhood those least likely to be long lived."

Fiscal laws which would operate in encouraging the marriages of the "inferior samples" of which Herbert Spencer speaks, might perhaps increase the population, but it certainly would not improve the quality. Finally, what is to be said of the bounties and medals which MM. Vacher and Jean David advocate as a means of encouraging the rearing of large families? During the session of 1883, a proposal was made by MM. Vacher, Jean David, Levet, and Audiffred, that with a view of checking the depopulation of France, every father of a family of six children should be entitled to nominate one who should be educated in a Government establishment at the expense of the State; that the civil law should not recognise perpetual vows of celibacy, and that consequently all bishops, archbishops, and heads of monastic institutions should be restrained from preventing the marriages of persons of both sexes living under their spiritual jurisdiction; that in every factory or workshop in which women are employed, there should be a place set apart for the reception of their children; that the various communes should assist unmarried women with children who have been abandoned by their seducers, and finally, that medals of honour should be distributed yearly by the Minister of the Interior to those persons, workmen and others, who bring up the largest families. M. de Nadaillac conjures French people to bring annually into the world 300,000 more children, and estimating at 3,500 frs. the average cost of rearing, maintenance, and education, this would represent a sum of 1 milliard 50 millions. This amount therefore would have to appear in the State budget, and be distributed in bounties if the desired effect is to be attained.

It is undoubtedly greatly to be deplored that those artificial causes to which we have referred, namely, the augmentation of public taxation, protection, and obligatory military service should combine to keep down the population in France, and more particularly that they should have the effect of deteriorating the quality of the productive forces of the country. But it would be a fatal error to wish to encourage French people to exercise less prudence and forethought in the matter of population, a prudence and forethought which contributes more than anything else to maintain them in a position immeasurably superior to that of other continental populations. It is owing to the spirit of prudence and economy which urges them to create capital, rather than to bring into the world an excess of population destined to be removed by emigration, misery, and increased mortality, that France has been enabled to recover from her misfortunes, and that she is in a position to bear public burdens which would crush nations less prudent and less economical. What she has to fear in the future is not so much the falling off in her population, as the contraction of ideas, and the species of mental obliquity of vision which leads the country to protection and on the downward path to socialism. Each day sees a weakening of the opinion that the public interest should alone be studied; politicians do not hesitate to sacrifice it to the necessity of augmenting the number of their votes, and they extend the privileges of the State in order to increase the places at their disposal with which to recompense their supporters; they increase the burdens which the general public have to bear, to satisfy a small number of electors at the expense of the large majority of the tax-paying community.

Even the landed proprietors and large employers of labour exercise their influence in the passing of laws which tend to increase their own individual incomes and profits at the expense of others; and finally the workmen, following the example set them by their masters, clamour for the exclusion of foreign labour with a view to the increase of their wages, without pausing to consider that by doing so they may be paving the way to the ruin of French industry. Each one appears only to consider his own particular advantage, and endeavours without any scruple to satisfy it, to the detriment of the public interests, oblivious of the fact that the ruin of the latter must inevitably bring in its train the ruin of private interests.

These then are the evils from which France is at the present day suffering, and which seriously menace the future of the country, and their effects are far more to be feared than the prudence and forethought of the French race in the matter of population.

VII.—*The Fires in London during the Year* 1886, *and the Metropolitan Fire Brigade.*

The following particulars are taken from Captain Shaw's Report for 1886, to the Metropolitan Board of Works, in continuation of similar notices for previous years:—

"The number of calls for fires, or supposed fires, received during the year has been 2,853. Of these 540 were false alarms, 164 proved to be only chimney alarms, and 2,149 were calls for fires, of which 151 resulted in serious damage, and 1,998 in slight damage.

"These figures only refer to the regular calls for fires, or supposed fires, involving the turning out of firemen, fire engines, fire escapes, horses, and coachmen; they do not include trifling damages by fires which were not sufficiently important to require the attendance of firemen; neither do they include the ordinary calls for chimneys on fire, which are separately accounted for further on.

"The fires of 1886, compared with those of 1885, show a decrease of 121; but compared with the average of the past ten years, an increase of 246.

"The following table gives the result both in actual numbers and percentages:—

Year.	Number of Fires.			Percentages.		
	Serious.	Slight.	Total.	Serious.	Slight.	Total.
1866........	326	1,012	1,338	25	75	100
'67........	245	1,152	1,397	18	82	100
'68........	235	1,433	1,668	14	86	100
'69........	199	1,373	1,572	13	87	100
'70.......	276	1,670	1,946	14	86	100
'71........	207	1,635	1,842	11	89	100
'72........	120	1,374	1,494	8	92	100
'73........	166	1,382	1,548	11	89	100
'74........	154	1,419	1,573	10	90	100
'75........	163	1,366	1,529	11	89	100
'76.......	166	1,466	1,632	11	89	100
'77........	159	1,374	1,533	10	90	100
'78........	170	1,489	1,659	10	90	100
'79........	159	1,559	1,718	9	91	100
'80........	162	1,709	1,871	9	91	100
'81........	167	1,824	1,991	8	92	100
'82........	164	1,762	1,926	9	91	100
'83........	184	1,960	2,144	9	91	100
'84........	194	2,095	2,289	9	91	100
'85........	160	2,110	2,270	7	93	100
'86........	151	1,998	2,149	7	93	100

" The number of fires in the metropolis in which life has been seriously endangered during the year 1886 has been 136; and the number of these in which life has been lost has been 41.

" The number of persons seriously endangered by fire has been 175, of whom 126 were saved, and 49 lost their lives. Of the 49 lost, 29 were taken out alive, but died afterwards in hospitals or elsewhere, and 20 were suffocated or burned to death.

* * * * *

" The number of calls for chimneys has been 1,658. Of these 565 proved to be false alarms, and 1,093 were for chimneys on fire. In these cases there was no attendance of engines, but only of firemen with hand-pumps.

" The number of journeys made by the fire engines of the 55 land stations has been 32,832, and the total distance run has been 61,768 miles.

" The quantity of water used for extinguishing fires in the metropolis during the year has been a little more than 10 million gallons, or about 45,000 tons. Of this quantity, nearly 14,000 tons, or about a third of the whole, was taken from the river, canals, and docks, and the remainder from the street pipes.

" During the year there have been 9 cases of short supply of water, 10 of late attendance of turncocks, and 10 of no attendance, making altogether 29 cases in which the water arrangements were unsatisfactory.

" This is a considerable improvement on the previous year, in which there were 39 such cases; and I have great pleasure in recognising the successful exertions of the water companies and their officials in the matter.

"I have also, as usual, to express our great obligations to the metropolitan and city police, whose cordial and energetic co-operation has never failed us at any time.

"The strength of the brigade is as follows:—

55 land fire engine stations.
4 floating or river ,,
26 hose cart stations.
127 fire escape ,,
4 steam fire engines on barges.
45 land steam fire engines.
77 six-inch manual fire engines.
37 under six-inch manual fire engines.
28 miles of hose.
63 hose carts.
3 self-propelling fire floats.
4 steam tugs.
7 barges.
146 fire escapes.
9 long fire ladders.
9 ladder vans.
2 ,, trucks.
1 trolly for ladders.
1 ,, engines.
12 hose and coal vans.
11 waggons for street duties.
4 street stations for street duties.
105 watch boxes.
589 firemen, including chief officer, second officer, superintendents, and all ranks.
16 pilots.
66 coachmen.
131 horses.
28 telegraphs between fire stations.
39 telephones ,,
54 alarm circuits round fire stations, with 347 call points.
3 telegraphs to police stations.
18 telephones ,,
14 telegraphs to public and other buildings.
20 telephones to public and other buildings.
15 direct fire alarms to public and other buildings.

"The substitution of telephones for telegraphs, which was commenced some years ago, still continues, and though for financial and other reasons carried out only gradually, has proved a great advantage. We are now proceeding more rapidly, and I anticipate that before the end of 1887 the change will be completed throughout the whole of our system.

"The number of firemen employed on the several watches kept up throughout the metropolis is at present 113 by day and 244 by night, making a total of 357 in every twenty-four hours; the remaining men are available for general work at fires.

"Our list of wounds and other injuries for 1886 is, as usual, very heavy; but the nature of the work, and the way in which it is always carried out, involve a certainty of numerous accidents.

* * * * *

"A reference to the figures in this report will show that the total number of calls, including those for actual fires, supposed fires, chimney fires, and supposed chimney fires, has been 4,511, or more than 12 a day, all of which have been attended by firemen with suitable appliances.

"In addition to the fires we have kept 130,305 watches of twelve hours each, have maintained all the machinery of the brigade in working order, written several thousand reports and letters, and carried on a variety of other work.

"This represents a severe amount of labour for so small a force, but all ranks have worked cheerfully and well; and I trust that the result may be considered satisfactory."

* * * * *

The following particulars (*a*, *b*, *c*) are obtained from the tables appended to the report, viz.:—

(*a*) The fires classified according to occupations, arranged in the order of frequency of occurrence; to which are added, for the purpose of comparison, the corresponding figures for the three previous years:—

Number.	Occupations.	Number of Fires.			
		1886.	1885.	1884.	1883.
1	Private houses	535	558	530	440
2	Lodgings	297	295	309	256
3	Victuallers	51	57	77	65
4	Grocers	49	39	28	42
5	Boot and shoe makers	46	26	26	30
6	Oil and colourmen	41	44	52	48
7	Drapers	37	35	35	40
8	Tailors, clothiers, and outfitters	33	33	34	27
9	Unoccupied	32	30	33	13
10	Confectioners and pastrycooks	27	21	17	33
11	Builders	26	31	26	35
12	Coffee houses	26	28	20	46
13	Printers	26	18	25	14
14	Tobacconists	26	29	24	22
15	Bakers	22	27	23	30
16	Cabinet makers	21	26	28	28
17	Chandlers	20	10	19	30
18	Greengrocers and fruiterers	20	22	38	34
19	Offices	20	32	28	16
20	Booksellers, binders, and stationers	19	23	20	21
21	Stables	18	19	25	12
22	Corn dealers	17	21	22	16
23	Fried fish shops	16	17	17	8
24	Public buildings, not theatres	16	18	13	8
25	Refreshment rooms	15	24	24	13
26	Beershop keepers	14	13	24	19
27	Hairdressers	14	19	14	5
28	Hotels and club houses	14	22	6	13
29	Provision merchants	14	7	13	12
30	Schools	14	10	12	8
31	Under repairs and building	14	21	31	32
32	Warehouses	14	19	13	27
33	Carpenters and workers in wood	13	24	9	14
34	China, glass, and earthenware dealers	13	12	10	12
35	Furniture makers and dealers	13	16	15	17
36	Farming stock	12	17	17	10
37	Engineers and machinists	11	10	20	15
38	Hatters	11	10	9	9
39	Milliners and dressmakers	11	14	9	22
		1,638	—	—	—
	Remainder, varying from 9 to 1	511	—	—	—
		2,149	—	—	—

(*b*) The fires classified under the causes to which they have been assigned, and arranged in the order of frequency of occurrence:—

Causes.	Number of Fires.
1. Unknown	700
2. Lamps (not gas) and lights (thrown down)	403
3. Gas (in various ways)	221
4. Sparks from fires, &c.	149
5. Defective, or improperly set—flues, hearths, stoves, &c.	143
6. Candles	119
7. Overheating of—flues, ovens, furnaces, boilers, stoves, &c.	69
8. Children playing with fire, matches, &c.	68
9. Boiling over, or upsetting of fat, pitch, &c.	52
10. Hot ashes	49
11. Airing linen and drying stoves	30
12. Foul flues, &c.	27
13. Smoking tobacco	22
14. Lucifer matches	19
15. Spirits, or vapour of spirits, in contact with flame	12
16. Doubtful	8
17. Fire, clothes coming in contact with	6
18. Friction of machinery	5
19. Spontaneous ignition	5
20. Burning rubbish	4
21. Intoxication	4
22. Lime slaking by rain and otherwise	4
23. Plumbers at work	4
Miscellaneous, varying from 3 to 1	26
Total	2,149

(*c*) The following table giving the totals of the fires for each day of the week for the last ten years, shows on the average that the largest number of fires occur on Saturday and the smallest number on Monday. The annual average number of fires for the last ten years is 1,955:—

Years.	Sunday.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.	Total.
1877....	192	218	212	224	243	216	228	1,533
'78....	260	191	271	234	214	236	253	1,659
'79....	235	212	231	257	264	251	268	1,718
'80....	288	262	253	259	254	266	289	1,871
'81....	270	267	315	288	279	253	319	1,991
'82....	285	246	296	267	281	274	277	1,926
'83....	297	334	309	318	269	295	322	2,144
'84....	296	330	304	335	338	340	346	2,289
'85....	331	319	321	338	326	300	335	2,270
'86....	294	293	294	317	306	304	341	2,149
Total..,	2,748	2,672	2,806	2,837	2,774	2,735	2,978	19,550

VIII.—*English Literature in* 1886.

The following particulars are taken from the *Publishers' Circular* of the 31st December, 1886, in continuation of a series of similar extracts for previous years:—

"On the last occasion we had pleasure in remarking that the almost universal depression of trade did not seem to have affected the production of books. This year, as the reader will observe, the total number shows a decrease of some four hundred books. As the preparation of a volume in many cases is spread over a considerable space of time, it may well be that the stagnation of business has made itself felt, but we are pleased to notice signs of a revival, not so much in the production of books as in the selling of books. At the same time the increasing number of magazines and newspapers which is presented for a reader's attention, must unquestionably exert an influence, and the newspapers often give such summaries of new works, and extracts from them, that a lazy man seems almost absolved from going to the books themselves.

"The analytical table is divided into fourteen classes; also new books and new editions."

Divisions.	1885.		1886.	
	New Books.	New Editions.	New Books.	New Editions.
Theology, sermons, biblical, &c.	636	211	616	136
Educational, classical, and philological	533	119	458	114
Juvenile works and tales	671	142	390	55
Novels, tales, and other fiction	455	240	755	214
Law, jurisprudence, &c.	72	57	18	15
Political and social economy, trade and commerce	210	43	214	32
Arts, sciences, and illustrated works	264	109	132	46
Voyages, travels, geographical research	169	70	178	43
History, biography, &c.	375	106	282	68
Poetry and the drama	118	46	60	33
Year books and serials in volumes	337	10	291	3
Medicine, surgery, &c.	116	71	114	57
Belles lettres, essays, monographs, &c.	146	74	128	351
Miscellaneous, including pamphlets, not sermons	205	35	348	59
	4,307	1,333	3,984	1,226
	5,640		5,210	

Analytical Table of Books Published in 1886.

Subjects.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total of Books on each Subject for the Year.	
Theology, sermons, biblical, &c.	*23	45	44	45	65	51	27	22	29	79	87	99	616	
	†10	12	13	9	12	13	11	7	6	11	12	20	136	752
Educational, classical, and philological	*13	35	33	47	33	41	36	18	22	63	70	47	458	
	† 4	21	12	4	4	13	11	3	5	10	17	10	114	572
Juvenile works and tales	* 8	4	5	3	3	9	2	3	12	135	111	95	390	
	† 3	2	1	—	2	2	2	4	2	13	15	9	55	445
Novels, tales, and other fiction	*21	46	58	82	49	77	75	45	53	85	55	109	755	
	† 6	14	21	27	19	11	19	30	12	10	14	31	214	969
Law, jurisprudence, &c.	*—	2	1	2	2	1	—	2	2	1	4	1	18	
	† 1	2	—	4	1	2	1	1	—	1	1	1	15	33
Political and social economy, trade and commerce	* 5	26	27	22	20	22	21	7	7	17	12	28	214	
	†—	5	6	7	1	—	2	—	4	1	3	3	32	246
Arts, science, and illustrated works	* 6	1	5	4	9	18	19	7	10	9	28	16	132	
	† 6	—	3	3	4	—	5	4	1	6	6	8	46	178
Voyages, travels, and geographical research	* 6	10	10	14	14	25	14	17	8	17	13	30	178	
	†—	1	2	3	5	4	8	4	3	2	3	8	43	221
History, biography, &c.	*10	21	22	16	20	22	21	14	7	27	39	63	282	
	† 2	8	4	5	7	10	3	6	5	4	5	9	68	350
Poetry and the drama	* 3	6	4	5	3	2	3	3	1	3	11	16	60	
	† 2	3	2	1	4	2	3	5	1	1	1	8	33	93
Year books and serials in volumes	*32	36	16	18	8	19	12	8	12	22	29	79	291	
	†—	—	—	2	—	—	—	1	—	—	—	—	3	294
Medicine, surgery, &c.	* 3	12	5	7	7	9	15	13	7	5	16	15	114	
	† 2	9	2	5	3	4	6	5	3	7	2	9	57	171
Belles lettres, essays, monographs, &c.	* 4	10	13	12	5	16	11	8	4	6	13	26	128	
	†19	16	23	44	31	27	38	18	17	43	32	43	351	479
Miscellaneous, including pamphlets, not sermons	*15	23	22	26	26	40	33	20	22	22	39	60	348	
	† 1	5	4	10	8	5	3	5	3	2	4	9	59	407
	205	375	358	427	365	445	401	280	258	602	642	852		5,210

* New books. † New editions.

IX.—*International Statistical Institute.*

The following is the programme of the meeting to be held at Rome, in the Palace of the Ministry of Finance, from the 12th to 16th April, 1887:—

Programme (Provisional) of Proceedings.

1. Questions relating to the Organisation of the Institute:
   - *a.* Revision of the Statutes, as required by Article XVII of the present Code.
   - *b.* On the best means of using the opportunities presented by the international meetings of the Institute during the Sessions, and in the interval between the Sessions.

     Note.—The Council will submit proposals for the revision of the Statutes; but it invites Members to consider the above two subjects, and to communicate to it any observations upon them, which should be forwarded to the President before the 31st March.

     Reporter:—The President, Sir Rawson W. Rawson.

2. Social Statistics: Consumption of Commodities, as the measure of the well-being of individuals, families and nations.

   Reporter:—Dr. Ernest Engel.

   On the best method of measuring the social and economic condition of a country at any particular period.

   Reporter:—Professor von Neumann-Spallart.

3. Demographic Statistics: On the differences which exist in the published results of different censuses, and proposals for arriving at the means of an international comparison.

   Reporter:—M. Joseph Körösi.

   On the decrease of mortality and the increase of the average duration of life in Europe.

   Reporter:—Dr. Léon Vacher.

   On the fecundity of marriages.

   Reporter:—M. A. N. Kiær.

4. Historical Statistics: On the means of developing the study and collection of historical statistics.

   Reporter:—Dr. von Inama-Sternegg.

   Investigations as to the condition and movement of the Population of France in the Eighteenth Century.

   Reporter:—M. Emile Levasseur.

5. Predial Statistics: On the best means of obtaining comparable information as to the Division of Property, and the size of Agricultural Holdings, owned and occupied, in different countries.

   Reporters:—Major P. G. Craigie.
   M. A. de Foville.

6. Labor Statistics: On the best means of obtaining comparable information on the Statistics of Labor in different countries.

   Reporter:—Mr. R. Giffen.

7. Economic Statistics: On the best means of obtaining Returns of Prices of Articles of Produce, Manufacture and Commerce, whereon to frame an "Index Number," for the purpose of comparing fluctuations in Prices at different periods, and differences of Prices in different countries.
   Reporter:—M. A. Beaujon.
8. Statistics of Finance: On the difficulties which hinder a statistical comparison of the Public Debts of different countries.
   Reporter:—M. L. Luzzatti.
9. Commercial Statistics: On the possibility and means of rendering more comparable the Official Returns of Foreign Trade in different countries.
   Reporters:—Mr. A. E. Bateman.
   M. Emile Caignon.

   Inquiry into the difficulties attending the investigation of the statistics relating to the circulation of the precious Metals in international commerce.
   Reporter:—M. Ch. Ferraris.
10. Essay on the Consumption in Europe of modern Stimulants, Spirits, Coffee, Tea, Cocoa, Sugar, Tobacco, and the Revenue raised in the several States upon such consumption.
    Reporter:—Dr. O. I. Broch.
11. Bibliography: On the possibility and means of preparing a Catalogue of Authentic Publications, official or other, in each principal Department of Statistics in different countries.
    Reporters:—Sir Rawson W. Rawson.
    M. Maffeo Pantaleoni.
12. Choice of place and time of holding the next meeting of the Institute.

To the above may be added such other communications as may be received by the President before the 31st of March, and shall be placed by the Council upon the orders of the day.

The definite arrangement of the order of discussion will be made by the Council.

Address of the President, 68, Cornwall Gardens, London, S.W.

X.—*Notes on Economical and Statistical Works.*

The Theory of International Trade, with some of its applications to Economic Policy. By C. Francis Bastable, Professor of Political Economy in the University of Dublin. Dublin: Hodges, Figgis, and Co., 1887.

This book contains a careful and thorough re-statement of perhaps the most intricate part of pure economic theory. Professor

Bastable, who occupies the Economic Chair in an University which numbered amongst its most distinguished *alumni* the two modern economists who took their stand—on the question of method at least—at what seemed to be the very opposite poles of thought, belongs, apparently, to that large and increasing school which endeavours to utilise the best results of the negative revolt made by Leslie against the "orthodox" school, while it adheres in the main to the "orthodox" doctrines and methods of treatment, of which Cairnes was so conspicuous an exponent. He admits, for example (preface, p. v), without hesitation, that "the whole body of economic science stands in need of a thorough revision, and in some of its parts, an entire reconstruction." He condemns, as sternly as the most "heterodox" economist could wish (p. 120), the "sweeping application" of the conclusions of economic theory "to practice, which has been," he says, "the greatest weakness of the older English economic school." And he explicitly recognises (p. 140) the "interdependence" of social phenomena, and maintains that "though economics is only one branch of social science, still it is connected with the other branches, and its cultivators ought to be able, to some extent, to deal with the problems of general sociology." But on the other hand he does not wish by any means to abandon the hypothetical method—and here he justly claims (p. 23) the support of "Leslie as well as" Cairnes, of "Dr. Ingram as well as" Mr. Sidgwick. "The real error lies, not in the use of hypotheses but in forgetfulness of the fact that they are unreal, or, at all events, incomplete" (p. 24). We must not then "throw aside the more solid portions of the older" (economic) "building;" but we must rather "utilise all sound material already existing, and as far as possible" "preserve that continuity of development which is one of the notes of a truly scientific system." A captious opponent, indeed, might here object that the special subject of which Professor Bastable treats is scarcely a fair criterion by which to test the soundness of this position. For it is peculiarly calculated to bring into bold relief the merits of the "classical" school, and to throw into the background its supposed characteristic failings. For in the first place it is in the department of international trade that English political economy has won its greatest practical triumph, although indeed, as Professor Bastable—in common with many others and especially Fawcett—points out (p. 128), the success of the Anti-Corn Law League was due not so much to deductive economic reasoning as to "appeals to specific experience." Had it been possible that the majority of an electorate could—like Professor Bastable, following in this Ricardo, J. S. Mill, Cairnes, and Cherbuliez (p. 126)—have arrived at a practical policy of free trade by deduction from the economic theory of international trade, then the vitality of protectionism would have been likely to awaken far more surprise. In the second place, the fault which is most justifiably laid to the charge of the older economists—the fault, to use Professor Marshall's succinct description, of regarding "man as, so to speak, a constant quantity," and the world as "made up of city men," "did little harm so far as they treated of money and foreign trade," and did not proceed to discuss the relations of industrial workers. And in the third and last place, it must be noticed that the necessity of the deductive method might be recognised—even by the unorthodox—in a subject which Mill declares "cannot possibly be made elementary." Beyond the general stand-point thus taken up by Professor Bastable—which calls for notice because it is characteristic of perhaps the most promising tendency in modern English economic thought—there is little in this book which requires any detailed comment. The attitude adopted in the preface is consistently maintained. The orthodox theory is stated, in the main, in the orthodox way; but it is worked out more thoroughly than has generally been the case hitherto, and minor modifications of more or less value are introduced. A preliminary objection to the separate treatment of international as distinct from domestic trade is, we think, satisfactorily met. Bagehot's definition of a "nation in the economical sense" as "a group of producers within which labour and capital freely circulate," is quoted with approval (p. 3); and while it is allowed that on this ground the theory is as applicable to "non-competing industrial groups" as to "nations," and that special cases of difficulty may arise in determining "international" boundaries, yet it is argued that the influences which go to produce a "nation" in the political, bear an intimate relation to those which go to form a "nation" in the economic sense; that there are special obstacles to the transfer of capital and labour—over and above the obstacle of distance on which Professor Sidgwick bases exclusively his re-statement of Mill's theory (pp. 13, 34)—and that these obstacles are likely to continue to exercise an appreciable influence for some time to come (p. 163) in the case of "international" trade, and that therefore international trade is the "particular field in which the immobility of the industrial agents," and its effect on the course of trade and the determination of values, "may be best perceived." In chapters ii—v Mill's treatment—which Jevons, no kindly critic, once said would "probably be found to be the truest and most enduring parts of his whole treatise"—is closely followed, and on the special topic of the foreign exchanges, Mr. Goschen's classical work is of course largely utilised. But it is to be noticed, among other modifications, that the expression "productive power" is substituted (p. 24) for "capital or labour;" that Mill's conclusion in the later exposition of his theory, that there might be more than one rate of exchange which might fulfil "the conditions of the equation of international demand," is qualified by the consideration (p. 26) of the "steadying effect produced by the existence of a large number of persons on each side," and the consequent probability that the "equation of demand once satisfied will not be lightly departed from" (p. 27), and of the similar effect of the existence of "several commodities on each side" (p. 36); and that the influence of the laws of diminishing and increasing returns with regard to the cost of production, and of the existence of non-competing groups within the limits of a "nation" enjoying a monopoly which is broken down by the opening of foreign trade, on the conditions of exchange, is carefully traced. In chapter vi there is an interesting and systematic discussion of a point which has not, so far as we know, been hitherto similarly treated—the influence of foreign trade on the internal distribution of wealth. The considerable effects of the importation of food on the "unearned increment" of "rent" in old countries—to which M. Leroy-Beaulieu has attached so much—perhaps too much—weight, are noticed; and an analogy is established between the "evils" inflicted by foreign trade on special groups of workers, and the effect of industrial improvements in general. The case for free trade is, as we have noticed, made to rest on a scientific basis, but a classification is attempted of the other general arguments advanced in its favour, and of the reasons for the continued popularity of protection. On the whole, Professor Bastable has managed to compress within the limits of 162 pages—together with some appendices on particular points—an adequate treatment of a wide topic; and he seems throughout to be as clear as the nature of the subject perhaps allows, and to be eminently fair to those from whom he differs in opinion. We think, however, that to his list of errata should be added on p. 26, line 4, "buyer" for "seller" (a clerical error reproduced from Jevons's "Theory"); that in the enumeration on p. 149 of the "several able and well-known works" in which the "many fallacious pleas" for protection "have been refuted," should be inserted Sir Thomas Farrer's "Free Trade *versus* Fair Trade"—especially as the list includes such recent publications as Mr. George's "Protection or Free Trade"—that in the references to Cairnes's "Leading Principles," the edition should be stated; and that, although it may seem a small matter, and is probably due to an oversight, yet the mention of Adam Smith under the abbreviated form A. Smith (pp. 3, 124) appears to us to detract from the reverence which is due—and which Professor Bastable so amply pays elsewhere—to the "old masters" of economics.

Les Salaires au XIX° Siècle. By Emile Chevallier, *avec une préface de* M. E. Levasseur. *Ouvrage couronné par l'Académie des Sciences morales et politiques (concours Rossi). Paris: Librairie Nouvelle de Droit et de Jurisprudence*, 1887.

The subject set by the Academy for the competition in which this book was successful, was calculated to elicit some contributions to contemporary statistics which would at least be interesting, and might prove of considerable value. The competitors were to ascertain by the aid of statistics gathered from different localities and different periods of time, illustrating different economic conditions, the nature and causes of the changes which had taken place in wages. M. Chevallier's book, which comes to us with the high recommendation of the approval of the Academy, and the praise of M. Levasseur, has, we think, succeeded in realising these objects. The method in which he has dealt with the question is undoubtedly interesting, the statistical material he has collected is digested with care and judiciousness, and his conclusions appear to be generally sound. He divides his subject into the two heads under which it naturally falls: (1) the nature, and (2) the causes of the changes in wages. He devotes a brief introduction to an examination of the basis on which the relation of wage-payer to wage-receiver rests; and here, although perhaps he adopts too dogmatic an attitude, he has little difficulty in showing that that basis is so natural—especially under the modern industrial *régime* of gigantic enterprises—that it does not appear likely to be replaced in any considerable degree by a system either of co-operative production or of industrial partnership. It is curious indeed, and very instructive, to find that in Paris, the sphere in a peculiar sense of co-operative production, a phenomenon exists which is almost identical with that which is in so many cases a prominent feature of societies of co-operative production in this country. For M. Chevallier states that even the French societies avail themselves of the aid of regular wage-earners, who have no claim to a bonus on their labour, when they wish to extend their business operations. He confirms moreover the suggestive remark of M. Leroy-Beaulieu, that industrial partnership is rather to be regarded as a supplement of the wage-contract, than as its substitute, for the profits thus shared bear a very minute proportion to the wages earned, and are to wages what salt and pepper, oil and vinegar are to bread and meat, a kind of "condiment," which imparts a relish to food, and renders it healthier and more agreeable, but does not of itself constitute food. M. Chevallier then proceeds to discuss the first of the two sections into which he divides his subject; and here again he has little difficulty in arriving at the conclusion that the great change which has affected the wage-contract in the present century, has been the steady and considerable increase of average wages. "La hausse des salaires," has indeed been, he remarks, the most conspicuous economic phenomenon of the last half-century, although at the time when he is writing that phenomenon has been for the moment apparently eclipsed. Despite of the difficulty of obtaining satisfactory statistics of wages ("une des plus grandes lacunes que l'on rencontre lorsque l'on s'occupe des questions economiques et sociales," to use the words quoted by M. Chevallier from M. Leroy-Beaulieu), and despite of the additional difficulty of interpreting those statistics when discovered, there can be little doubt that the conclusions obtained by independent lines of honest and impartial inquiry, must agree in testifying to the fact of a decided improvement in the average condition of the working classes during the last half-century—the period to which for the most part M. Chevallier limits his researches—however widely they may differ in their estimates of the amount of that improvement. The dimensions then of the "economic gulf" between rich and poor appear unmistakably to be diminishing instead of increasing, when they are viewed in the calm light of statistics. The rich are not growing richer, and the poor poorer, as socialist writers are so prone to maintain, although they characteristically evade the crucial difficulty of defining what they mean by "the rich," and what they connote by "poverty." The economic tendency seems on the contrary to take an opposite direction, and to assume the form of a "decreasing inequality of conditions," as M. Leroy-Beaulieu, of whose researches M. Chevallier very frequently, and naturally, avails himself, has so forcibly maintained. "The progress," indeed, "of the working classes," has recently received the strongest and most authoritative confirmation in our own country by the report of the Depression of Trade Commission. And in this book M. Chevallier arrives at a similar conclusion, on the evidence of statistics diligently gathered not merely from his own country—where he supplies among other evidence some interesting figures collected by personal inquiry—but also from Australia, and the United States, from Germany and from England, where he relies for a great part of his evidence on the papers contributed by Mr. Giffen and Mr. Jeans to this *Journal*. There has been, he maintains, a decided rise in average wages, even of women; and a most significant point—due probably to the levelling influence of education—is that the increase seems to have been greater in the case of the smaller than in that of the larger earnings. Nor is this rise in wages merely nominal; for the average hours of daily and of weekly work have been generally reduced—although we cannot here entirely agree with M. Chevallier, when he argues that the English observance of a Saturday half-holiday "se rattache aux habitudes religieuses Anglaises." And again there is no increase on the expenditure side of the average workman's balance sheet which can be justifiably said to counterbalance the increase in his receipts. His "standard of comfort" has indeed undoubtedly advanced, and his wants are more numerous and expensive.

But this is in itself evidence of improvement; and we might readily concede to the socialists that in the sense of satisfying his possible desires, the working, and indeed almost every, man was continually in a state of "poverty," without accepting or endorsing their pessimistic views of social progress. The growth of agencies for saving; the increase, noted in England by Mr. Humphreys, in the average duration of life; the concurrent extension of the services rendered by the State to the working man, and decrease in the taxation levied from him, are used by M. Chevallier, in the same way as they have been employed in England by Mr. Giffen, to illustrate and confirm this conclusion. But what are the causes of this advance? Can an adequate answer be found in the economic theory of wages? and if so, why is it that modern socialists, unlike their predecessors, claim to derive their conclusions directly from economic science? It is to questions like these that M. Chevallier virtually supplies an answer in the second part of his book. He throws aside of course the old economic theory of wages, and he justly points out that it was this theory which was the "fons et origo" of the "brazen law" of the socialists. But he might have added that the version which Marx and Lassalle gave of the Ricardian theory was a garbled revision of their own, and by no means an authorised version; and that a careful student of Ricardo might have refuted them out of Ricardo himself. He quotes again with approval from M. Leroy-Beaulieu the words, "toute la théorie du salaire est à refaire dans la science économique;" but his own treatment would rather justify M. Levasseur's qualification "qu'elle est toute à réviser." The older economists were indeed, as he remarks, following Professor Walker—confronted by circumstances peculiar to the times in which they lived, and they generalised from those circumstances; but they also caught momentary glimpses at least of the truth. M. Chevallier himself finds his "minimum limit" to wages in the Ricardian formula, "the cost of the production of labour," although he gives to the formula, as Ricardo himself did in some passages of his works, an elastic interpretation. The maximum, on the other hand, he discovers in productivity of work; and he very justly points out that it is to the extension of this limit that modern industrial improvement has so largely contributed. Between these two limits competition, subject to the steadying influence of custom and law and public opinion, exercises its effects; and it is partly because the laws and public opinion, which once favoured the masters, now incline if anything to the side of the men, and partly also because of the special power of combination and strikes, that the workmen have been able to raise wages from the lower limit towards the higher, while that higher limit itself has been extended with the progress of invention. This is the key which explains, and we are inclined to think correctly, the increase of wages.

Materialien zur Erläuterung und Beurteilung der wirtschaftlichen Edelmetalverhältnisse und der Währungsfräge. 2nd edition, revised. By Dr. Ad. Soetbeer. xii + 123 pp., 4to. Berlin, 1886.

It need hardly be said, considering Dr. Soetbeer's authority in regard to the precious metals, and as an economist generally, that this is one of the most important statistical contributions, which has yet appeared, to the so-called silver question. We propose merely to give our readers a summary of the more important contents. We have first of all tables of the Production of the Precious Metals from 1493-1885, with detailed tables of the Production of Gold and Silver from 1851-85, both in quantity and value, followed by explanatory notes of the production in the various mining countries. In part ii, dealing with the Relative Value of Silver to Gold, Messrs. Pixley and Abell's tables of the price of silver in London during the past thirty-four years are reproduced, together with a table of the relative value calculated therefrom; these tables are followed by historical notes on the relative value of silver to gold, going back to almost prehistoric times. The Application in the Arts, &c., of the precious metals is then dealt with, including coinage in all countries and the industrial consumption. The United States tables on the Industrial Consumption of the metals are quoted very fully; the author also calls special attention to the enormous absorption of both gold and silver going on in India, and gives very full tables bearing on this portion of the inquiry. Dr. Soetbeer considers (p. ix) the Annual Consumption of gold in the Arts to amount to 90,000 kilograms (about 90 tons). Part iv deals with the Movements of gold and silver to and from the various parts of the world, and the author concludes (p. x) that the approximate agreement, during a long period, of the statistics of the United States and Great Britain in this respect, gives a good basis for positive principles in fixing the movements of the precious metals. The Reserve of gold and silver and its Circulation in civilised countries are statistically described in part v, and here the author enters into a minute inquiry into the state of the Bank Reserves in every country from 1851 to date, and he concludes that in respect to metal reserves France holds the best position; he also comments on the smallness of the banking reserve in relation to the enormous business transacted by the banks (p. x), and points out that in 1877 the bank reserve of gold in the world was 3,500 million marks (175 million pounds) against 5,040 million marks (252 million pounds) in 1885, while the total reserve of the precious metals at the end of 1885 (p. 77) was 21,207 million marks (1,060,350,000*l.*). In part vi Discounts and Course of Exchange are dealt with, and in part vii, the most important of all, Dr. Soetbeer deals with the Changes in the Prices of Commodities in general, and with the Purchase Power of gold during the last thirty-five years. This includes the prices paid to builders and builders' labourers in Hamburg from 1848 to date; the salaries paid on the Prussian State railways from 5th November, 1850 to 1886, followed by a series of tables of the prices ranging in every year from 1851 to 1885 of 114 commodities in ordinary use, inclusive of 14 articles of British export. On p. xi it is stated that in respect to the purchase power of gold, the changes in the common cost of living, labourers' wages, salaries, house and land rent (from 1851 to 1885) do not by any means show the same rising tendency so overwhelmingly exhibited in the wholesale prices of commodities. On p. 117 the author tells us that of the 114 articles enumerated, 51 had risen 5 per cent. in 1885 as compared with 1847-50; 55 had fallen more than 5 per cent., and the remaining 8 showed no appreciable change; compared with the period 1871-75, the year 1885 shows a rise of more than 5 per cent. in 10 articles, a fall of more than 5 per cent. in 90 articles, and an inappreciable alteration in 14 articles. On the whole the author has avoided as much as possible the giving of any positive conclusions—however well able he is to do so. Nevertheless the work is a monument of useful industry, which, as a reliable statistical fund, will be much sought after. In the appendix the author describes the main features of the monetary systems in use in various civilised countries. The supplement to the *Materialien* consists of graphic representations of the statistical tables above mentioned.

The Quarterly Journal of Economics. Published for Harvard University. No. 1. Boston, October, 1886.

In the September number of the *Journal* we commented on a series of new reviews dealing more or less directly with economical subjects, and we now offer a hearty welcome to a new American journal for which we have no counterpart in England. Professor Dunbar opens the *Quarterly Journal of Economics* with a paper, worthy of its position, on the Reaction in Political Economy. The author defends the old deductive methods and conclusions of Mill and Ricardo, and considers (p. 18) that the temporary stoppage in the progress of the science is in a great measure due to the timidity of those who have had the teaching of the science in charge. He describes (p. 26) the new departure as in fact a development of the existing science, under the influence of a strong reaction against tendencies which had prematurely checked its advance. If, however, certain works, such as, say, for instance, Marshall's *Economics of Industry* were as well known in America as it is in England, the statement (p. 27) that the "current political economy needs to be brought into closer relation to the life of to-day," would not have needed penning. In connection with this article the reader should peruse the abstract, in the appendix, of Professor Wagner's views on the Present State of Political Economy. The second paper is by Mr. Arthur T. Hadley, on Private Monopolies and Public Rights, and deals with the railway question in the United States. The last paper is by Mr. S. Dana Horton, on Silver before Congress in 1886. In the Notes and Memoranda there is (pp. 86—91) a short important contribution on the American Legislation for Labour Arbitration during 1885-86. This is followed by an interesting letter from Mr. Arthur Mangin on the State of Economics in France. Pp. 103—112 are devoted to a classified list of recent publications upon Economics.

Ministère des Travaux Publics. Album de Statistique Graphique de 1885. Fol. Paris, 1886.

This is the eleventh annual volume issued by the Ministry of Public Works, and deals almost wholly with the year 1883. Nor labour nor expense have been spared in the get up of the coloured diagrams of which this atlas consists, and it may well be described as an *édition de luxe* of the statistics of the carrying capacities of France, as exemplified by her railways, canals, shipping, tramways, and omnibuses. Plate 6, which is a new one, analyses the number of passengers on the railways, and plate 7 gives for the same year the movements on the World's railways, indicating the tonnage and passengers carried, as well as the number of tons and passengers carried per head of the population of the various countries. Great Britain and Ireland head the latter list with 19·2 passengers and 7·5 tons carried per inhabitant, while the United States ranks 0·1 higher in tonnage, but 13 less in passengers carried. Although this plate and the accompanying table is based on the statistics of the *Commission Internationale*, other sources have been drawn from, and thus it comes about that in consequence of an error in the total of the population of Australia (2,080,000 instead of 3,090,000) this continent is credited with a passenger rate of 18 instead of less than 13 per inhabitant. In spite of the care and elaborateness with which the plates have been prepared, when a statistical graphical atlas of this sort is not supplemented with statistical tables, its practical value is remarkably small, and this fact is well exposed by means of plate 21, showing the workings of the French tramways from 1880 to 1884. By means of coloured proportional sections, the reader can see at a glance the proportionate original cost of construction, the mileage run, the receipts, expenditure, and profits or losses, all worked out to scale, but even with the aid of the accompanying linear graphical diagram, he cannot without the aid of a pair of compasses and a scale measure attain to any degree of accuracy in obtaining figures for purposes of comparison elsewhere. In fact, the whole of this work might easily have been compressed into some fifty pages of statistics, at probably one-twentieth the cost, and produced in less than half the time. No author's name is mentioned throughout the work.

Théorie de la Monnaie. By Leon Walras. xii + 123 pp., 8vo., diagrams. Lausanne, 1886.

Twenty years ago Professor Walras was a supporter of monometallism in the monetary system and wrote vigorously in its favour; since that date he has by slow, but decided, degrees come to adopt the views of the bimetallists. In the present pamphlet he calls attention to the fact, that, the theory which he now claims to be the only good one, finds independent support in various countries from men of divers views, and he then proceeds to describe the eight successive stages, from his article *Du numéraire et de la monnaie* in 1874 to the one now before us, in which he has developed his views, in order finally to arrive at the theory that a monetary system of a country should be based on a gold standard with a silver regulating coin. The bulk of this little work is devoted to a mathematical demonstration of this theory.

L'Impôt sur le Revenu. Rapport fait au nom de la Commission du Budget . . . By Yves Guyot. xii + 346 pp., 8vo. Paris, 1886.

The report set forth in these pages with such detail was prepared at the request of the Budget Commission, and had for its object the investigation of the various schemes of taxation of revenue and capital which have been proposed in France since 1871. The author, however, does not by any means confine himself to the period elapsing since the above named date, but discusses also very fully some of the financial plans of the first republic, as well as giving frequent notes of schemes of still earlier date. He gives and analyses the figures of the sums at present raised by the direct taxes on land and personal property, and then discusses and explains the British income tax, the income taxes in the German States, the property tax in Italy, the tax on income and capital in the Swiss cantons, and the tax on capital in the United States. The information under these headings is very clear, and is given with great fulness of detail, that of Germany especially so. M. Guyot also scrutinises, in the course of his investigations, the capital values of the United States, of Great Britain and Ireland, and of France. In the appendix, amongst other matters, the author gives a French translation of the Income Tax Act of 1853, and of the Customs and Inland Revenue Act of 1886. In the course of the investigations, M. Guyot points out that in no case has any country succeeded in imposing a tax on income completely and solely, and that in every case the burden is inequitably distributed. If he was opposed to an income tax before he began these special studies, he is all the more opposed now, and he concludes, that to raise the necessary funds the taxes on landed property should be increased; at the same time he proposes that certain encumbrances, which lie in the way of an easy transfer of land, be lightened. One of the arguments which appear to have led him to desire the increase of taxes on landed property may be seen on p. 47. Supposing the price of a hectare (2·67 acres) to have been 100 frs. in 1789, he shows how at successive periods it has risen until it had reached to 365 frs. in 1880 (a decline of 35 frs. since 1874), and he then goes on to point out that the land tax has only risen in the proportion 100 to 125 during the same period, showing a difference in the progression of the value of the land to that of the total landed tax of 240 to 100. Another argument *apparently* affecting his decision may be found on p. 248. He finds the value of the productive land of Belgium to be 9,431 million francs; also that the area of France embraces 52·8 million hectares, and that of Belgium 2,945 thousand hectares. From these figures he argues that if Belgium had the same area as France, her capital value would be 168,795 million francs, which is a proof that the capital value of France is capable of considerable increase, in other words that the land can be further taxed. Lastly (p. 89), that the landed taxes in England are 74 per cent. heavier than in France. The author must have bestowed a great amount of labour on his work, for which economists will in due course be very grateful.

Das wirthschaftliche Leben der Völker. Ein Handbuch über Production und Consum. By Dr. Karl von Scherzer. 756 pp., 8vo. Leipzig, 1885.

In attempting a revision of his work on the economico-statistical results of the "Novara" Expedition, published about twenty years ago, the author has, by the very extensiveness of his subject, been drawn into the publication of what is an entirely new book. We have in fact before us a statistical encyclopædia of the production and consumption of the more important commodities as they appear in the world's commerce. More than two-thirds of the volume are taken up in the description of the career of articles drawn from the animal and vegetable kingdoms, and in the course of the process the author enters into the details of their origins, the quantities exported, their distribution and final consumption. Let us take, for example, the article sugar, which occupies pp. 103—118. Starting with an account of the British imports and exports, Dr. Scherzer gives the statistics of the consumption per head for the individual civilised countries. This is followed by a table of imports and exports for Europe from 1879-82. The statistical production of cane sugar is next gone into, every colony or centre of production being enumerated, and finishes with a tabular statement of the whole world production of cane sugar. We are then treated to three or four pages on the production of beet sugar, after which come notes on the less important sugars, such as maple, sorghum, palm-sugar, &c. In a similar spirit coffee, straw, timber, hair, leather, silk, and a whole host of articles are dealt with. Pp. 491—612 treat of metals, coals, and other minerals, and are followed by a short chapter on chemicals, and one on machinery. The development of trade and the relative participation of the various nations in the same next occupy the reader's attention, and lead the way to a dissertation on the precious metals and the credit system. The last three chapters deal with means of transport and communication generally, such as canals, railways, posts, telegraphs, cables, and telephones, with emigration and colonisation, and the work winds up with an account of all the different monies, weights, and measures in use in commerce. A book of this sort, being as it is of the nature of a statistical abstract, cannot offer anything that is new, and at the same time, on account of the large area over which it ranges, it cannot be brought quite up to date. It nevertheless remains a monument of energy, and forms a valuable book of reference.

Die Eisenindustrie der Vereinigten Staaten. By Dr. E. Reyer [Düsseldorf?]. 27 pp., 4to. 1887.

This is a reprint from the periodical *Stahl und Eisen.* Therein Professor Reyer has given a very clear and compact statistical account of the past and present state of the Iron and Steel Trades of the United States, and has enhanced the value of his American investigations by the numerous comparisons he so frequently draws between the relative productions across the water, in England, and on the Continent. In the very first of these comparisons he is however not quite so happy as we could wish him to be, as, for instance, on p. 1 he contrasts the capital value of the American iron and steel trade in *1880* with that of Great Britain in *1875*, manifestly to the disadvantage of the latter country. With this exception the comparisons are fair and certainly very instructive. We give some of his figures. In the United States in 1884 of the total pig iron production (4·1 million tons) 1·4 million tons was accomplished by means of anthracite coal, 2·3 by means of bituminous and mixed coal, and 0·41 by means of charcoal; in 1840 the whole of the 300,000 tons of iron made had been produced by means of charcoal alone. At the latter date it took 2 tons of charcoal to make 1 ton of pig iron, while at the present day 1 ton of pig iron can be produced by means of 1 to $\frac{9}{10}$ of charcoal only; and as regards the comparison with the consumption of coal, forty-six years ago 3 tons of this fuel were necessary to produce 1 ton of pig iron, against half that amount of coal at the present day. The remarkable expansion of the output of Bessemer steel is illustrated by the fact that in 1885 out of a total manufacture of all kinds of steel amounting to 1,730,000 tons, 1,540,000 tons were of Bessemer steel, the proportion between the output of the Bessemer to other steels being thus much the same as in England. In connection with the rail trade, the author makes certain remarks which throw light on some otherwise obscurely accounted for American railway accidents. He states that in consequence of the fall in the price of steel rails since 1870, these articles are made of inferior metal, are hurried through the mills, and are hastily tested. The civil engineers are also to blame in this respect, neglecting to take cognisance of the altered conditions under which trains are now-a-days run; formerly, that is fifteen or twenty years ago, locomotives of twenty tons weight were commonly in use, while now those with double the weight are driven over the same lines, and yet the foot weight of the rails is the same as before, while the heaviest rails in use are only just equal to the lightest in use in England. He states that it has frequently happened that steel rails have been taken up which have not lasted as well as the iron ones of the good old times. Professor Reyer calls especial attention to the marked increase of the use in America of machinery in lieu of hand labour. In 1870 for every working man employed 1·14 horse-power was necessary, while in 1880 the relation stood as 1 to 1·25; the increase is particularly noticeable in all handling of goods, and more especially in the removal of the more weighty ones. The iron and steel trade gave occupation in 1880 to 141,000 workmen, and employed 397,000 horse-power; of the labourers 42,000 were engaged in the pig-iron trade, 83,000 in the wrought-iron, and 16,000 in the steel trade. Hence according to the figures of production in these departments, every workman produces 82 tons of pig-iron, 80 tons Bessemer and Siemens' steel, and 26 tons rolled iron. The author compares these results with Germany and Belgium, where one man produces 33 tons and 48 tons of Bessemer steel respectively. As Dr. Reyer enters into the facts and figures of the tariffs, we may just mention that in 1885 San Francisco had to pay $42 for Pennsylvania rails, which could be landed there from England for $26! Of his remarks on the prices we need not enter here. We have picked the above information at random out of the pamphlet, but the reader must not therefore imagine that the author has treated his subject in the same haphazard way. The work is most systematically and carefully compiled, and even those who know all about the iron trade will find much material to think about.

XI.—*Additions to the Library.*

Additions to the Library during the Quarter ended 31*st March*, 1887, *arranged alphabetically under the following heads:*—(a) *Foreign Countries;* (b) *India, Colonial and other Possessions;* (c) *United Kingdom and its several Divisions;* (d) *Authors, &c.;* (e) *Societies, &c.* (*British*); (f) *Periodicals, &c.* (*British*).

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(a) **Foreign Countries.**	
Argentine Republic—	
Datos mensuales del Comercio Exterior. Año 1886, Nos. 50 y 51	The Argentine Legation, London
Buenos Ayres—	
Annuaire Statistique de la Province de—. V^{e} année, 1885. Maps	The Director of the Bureau of Statistics
Registro Estadistico de la Provincia de—. Segunda Epoca. Año 1879 y año 1880. Fol.	
Bulletin mensuel de Démographie de la Ville de—. V^{e} année. Nos. 9—12. 1886	

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(a) **Foreign Countries**—*Contd.*	
Austria and Hungary—	
Nachrichten über Industrie, Handel und Verkehr—	
Band xxxii. (Jahresberichte der k. und k. österreichisch-ungarischen Consulats-Behörden. XIV Jahrgang, 1886. Hefte 1—12)	The Ministry of Commerce, Vienna
Band xxxiii, Heft 3. Haupt- ergebnisse der österreichischen Eisenbahn- Statistik im Jahre 1885. Heft 4. Werthe für die Mengeneinheiten der im Jahre 1885 im oesterreichisch-ungarischen Zollgebiete ein- und ausgefuhrten Waaren	
Oesterreichische Statistik—	
Band xi. Statistik der Rechtspflege. Heft 3. Die Ergebnisse der Strafrechtspflege, 1883	The Central Statistical Commission
Band xiii, Heft 2. Statistik der Sparcassen in den im Reichsrathe Vertretenen Konigreichen und Ländern für das Jahr 1884	
Band xiv. Statistik des auswärtigen Handels der österreichisch-ungarischen Monarchie im Jahre 1885. Heft 1. Bericht über die Erhebung der Handelswerthe und Haupt- Ergebnisse des auswärtigen Handels im Jahre 1885	
Hungary—	
Magyarország Aruforgalma Ausztriaval es mas Orszagokkal. (Trade Statistics.) Fuzet 9—11, 1886	The Royal Hungarian Statistical Bureau
Statistisches Jahrbuch für Ungarn—	
XIV Jahrgang, 1884, Heft 7. Das Communicationswesen im Jahre 1884. Heft 8. Ungarns Rechtspflege und die Bewegung im Besitz und Lastenstande der Realitäten im Jahre 1884	
XV Jahrgang, 1885, Heft 4. Bergbau- und Hüttenwesen im Jahre 1885	
VILLE DE PRAGUE. Bulletin hebdomadaire de la—, et des Communes-faubourgs. (Current numbers)	The Statistical Bureau of Prague
Belgium—	
Annales des Travaux Publics de Belgique. 2^e Cahier, Tome xliv. Plans, 8vo. 1886	The Administration of Mines
Statistique médicale de l'Armée Belge. Année 1885. Diagram, 8vo.	The Government of Belgium
Ville de Bruxelles—	
Bulletin hebdomadaire de Statistique Démographique et Medicale. (Current numbers)	Dr. E. Janssens, Brussels
Rapport fait au Conseil Communal en Séance du 4 Octobre, 1886	—
VILLE DE BRUGES. Rapport sur l'Administration et la Situation des Affaires pour l'année 1885. 8vo.	The Burgomaster
China. Journal of the China Branch of the Royal Asiatic Society for 1884. New Series, vol. xix, Part 2. Map	The Society
Denmark. Nationalökonomisk Tidsskrift. Ny Række. Heft 1. 1887	The Danish Political Economy Society

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(a) **Foreign Countries**—*Contd.*	
Egypt—	
Bulletin mensuel du Commerce Extérieur de l'Égypte avec un Appendice sur le mouvement de la Navigation du Port d'Alexandrie. Iere année, No. 1, Janvier, 1887	A. Caillard, Esq., Director-General of Customs
Report on the Budget of 1887, by Mr. Edgar Vincent....	Edgar Vincent, Esq.
France—	
Album de Statistique Graphique de 1885. (Chemins de Fer, Navigation Intérieure, Navigation Maritime, Tramways, et divers.) Diagrams, 4to.	The Ministry of Public Works
Annuaire Statistique de la France, IXe année, 1886	The Ministry of Commerce
Ministère de l'Agriculture. Bulletin. VIIIe année, Nos. 7, 8, 1886	The Ministry of Agriculture
Ministère des Finances. Bulletin de Statistique et de Législation comparée. Décembre—Fevrier, 1886-87, et Table des matières contenues dans les 20 premiers volumes (1877-86)	M. A. de Foville, Paris.
Ministère des Travaux Publics. Bulletin du—. Statistique et Legislation comparée. Décembre, 1886, Janvier, 1887	The Ministry of Public Works
Tableau General des Mouvements du Cabotage pendant l'année 1885. Fol.	The Director-General of Customs, Paris
VILLE DE PARIS. Annuaire Statistique de la—. Ve année, 1884	Dr. J. Bertillon, Paris
VILLE DE REIMS. Bulletin Mensuel du Bureau Municipal d'Hygiène. Novembre—Janvier, 1886-87	The Bureau of Hygiène
L'Economiste Français. (Current weekly numbers.) Paris	The Editor
Révue Bibliographique Universelle, Paris:—	
Partie Littéraire. Décembre—Mars, 1886-87 ,, Technique. ,, ,,	,,
Révue Géographique Internationale. Nos. 133—135, 1886-87	,,
Société de Statistique de Paris, Journal de la—1887—	
Fevrier. Le Problème monétaire (Seconde Partie). De la Baisse de la Valeur de l'Argent par *F. de Flaix*. Le Denombrement de la Population en France Mars. Les Tables de Survie, par *E. Levasseur*. Le problème monétaire (Seconde Partie). De la Baisse de la Valeur de l'Argent, par *F. de Flaix*	The Society
Annales de l'École Libre des Sciences Politiques—	
Ie année, 1886. No. 2. Le gouvernement local et la tutelle de l'État en Angleterre, par *E. Boutmy*. Du droit regalien en matière de mines, par *A. Menant*. Étude sur l'histoire de l'Impôt foncier en France jusqu'en 1789, par *F. Auburtin*. Le régime légal des associations en Suisse, par *B. E. Hulot*. La Mission de l'Adjudant-Commandant Mériage à Widin en 1807-09, par *Boppe*. Les Associations musulmanes, par *Meyer*	The Institution

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IIe année, 1887. No. 1. De la Délimitation du rivage de la mer et de l'embouchure des fleuves et rivières, par *L. Aucoc.* La Constitution allemande et l'hegemonie prussienne, par *A. Lebon.* Les Congrégations religieuses, par *E. Morlot.* Les vallées françaises du Piémont, par *H. Gaidoz.* Le Réorganisation de l'Impôt sur les terres en Italie, par *P. Fuzier*	
Germany—	
Monatshefte zur Statistik des Deutschen Reichs. November, 1886, Januar, 1887	The Imperial Statistical Bureau
Statistik des Deutschen Reichs. Neue Folge—	
Band vi. Gewerbestatistik des Reichs und der Groszstädte nach der Allgemeinen Berufszählung vom 5 Juni, 1882. Theil 1. Gewerbestatistik des Reichs. Diagrams	
Band xx. Waarenverkehr des deutschen Zollgebiets mit dem Auslande im Jahre 1885. Theil 2 und 3	
Band xxi. Statistik der Seeschiffahrt für das Jahr 1885. Abtheilung 2. Seeverkehr in den deutschen Hafenplätzen und Seereisen deutscher Schiffe	
Band xxii. Der Verkehr auf den deutschen Wasserstrassen im Jahre 1885	
Prussia. Preussische Statistik. lxxxix. Die Bewegung der Bevolkerung, mit Einschluss der Wanderungen im preussischen Staate während des Jahres 1885	The Royal Statistical Bureau of Prussia
Saxony. Zeitschrift des K. Sächsischen Statistischen Bureaus. XXXII Jahrgang, 1886. Heft 1 und 2. (Contents.) Die sächsische Volkszählung, 1885. Supplementheft enthaltend Die Ergebnisse der Sächsischen Berufszählung vom 5 Juni, 1882	The Royal Statistical Bureau of Saxony
Berlin—	
Statistisches Jahrbuch der Stadt Berlin. XII Jahrgang. Statistik des Jahres 1884	The Statistical Bureau of Berlin
Veröffentlichungen des Statistischen Amts der Stadt—Eheschliessungen, Geburten, Sterbefälle, und Witterung. (Current numbers)	
Frankfort. Jahresbericht ueber die Verwaltung des Medicinalwesens die Krankenanstalten und die Oeffentlichen Gesundheitsverhaltnisse der Stadt Frankfurt A.M. XXIX Jahrgang, 1885	The Statistical Bureau
Guatemala. Directorio de la Ciudad de Guatemala. Año de 1886. Map, 8vo.	The Statistical Bureau

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(a) **Foreign Countries**—*Contd.*	
Italy—	
Annali di Agricoltura—	
1886, No. 84. Relazione sulle stazioni di Prova Agrarie e Speciali fino a tutto l'anno 1885	The Director-General of Agriculture
1887, No. 118. Consiglio di Agricoltura. Sessione 1886	
Annali dell' Industria e del Commercio, 1887—	
Atti del Consiglio dell' Industria e del Commercio. Sessione Straordinaria del 1886...............................	The Director-General of the Statistics of Italy
Sull' Insegnamento Speciale per l'Incremento delle Industrie e dei Traffici	
Atti della Commissione d'Inchiesta per la Revisione della Tariffa Doganale. Parte Agraria. Fasc. 2. Parte Industriale, Fasc. 1—4. 4to. 1886	
Atti della Giunta per la Inchiesta Agraria e Sulle condizioni della Classe Agricola. Vol. xv, Tomo 2. Indice Sinottico- Analitico degli Atti dell' Inchiesta. Obl. 8vo. 1886	
Bollettino Consolare, Novembre—Dicembre, 1886. (Relating to) *Argentine Republic*—Rosario; *Peru*—Calloa; Switzerland; Sierra Leone; *Holland*—Amsterdam; *Egypt*—Suez Canal; *India*—Bombay	
Bollettino di Legislazione e Statistica Doganale e Commerciale. Novembre—Febbraio, 1886-87	
Bollettino mensile delle Situazioni dei Conti degli Istituti d'Emissione. Anno XVII, Nos. 10—12, 1886; Anno XVIII, No. 1, 1887	
Bollettino di Notizie sul Credito e la Previdenza. Anno IV, No. 24, 1886; Anno V, Nos. 1—3, 1887....	
Bollettino Settimanale dei Prezzi di alcuni dei principali Prodotti Agraria e del Pane. (Current numbers)	
Casse di Risparmio. Anno II. Bollettino del 2° Semestre 1885	
Della Leva sui giovani nati nell' anno 1865 e delle Vicende del R. Esercito dal 1 Luglio, 1885 al 30 Giugno 1886. 4to.	
Esposizione Finanziaria fatta alla Camera dei Deputati dal Ministro delle Finanze, interim del Tesoro A. Magliani nella Tornata del 19 Dicembre 1886. 8vo.	
Notizie intorno alle Condizioni dell' Agricoltura. I Conti culturali del Frumento, 1887	The Director-General of Agriculture
Risultati dell' Inchiesta sulle Condizioni Igieniche e Sanitarie nei Comuni del Regno. 2 vols. 1886	The Director General of the Statistics of Italy
Statistica del Commercio Speciale di Importazione e di Esportazione. Dicembre, 1886, Gennaio, 1887	
Statistica dei Debiti Comunali e Provinciali per Mutui al 31 Dicembre degli anni 1882, 1883 e 1884	
L'Economista. (Current weekly numbers.) Florence....	The Editor
Giornale degli Economisti. Vol. ii, 1887—	
Fasc. 1. Intorno alla definizione della ricchezza: *H. D. Macleod;* Di alcune Critiche mosse alle mie teorie: *A. Loria;* L'Agricoltura siderale: *D. Lampertico;* La riforma monetaria in Egitto e gl' interessi italiani: *A. Mortara;* La Penisola dei Balcani: *A. Bertolini;* La Riforma al dazio del Petrolio: *J. Kaizl*	,,

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Giornale degli Economisti. Vol. ii, 1887—*Contd.*	
Fasc. 2. Il carattere della scienza economica secondo il Signor Macleod: *S. C. de Martiis;* La Teorica della cooperazione: *L. Wollemborg;* Appunti di un libero-scambista: *A. Bertolini;* Le Casse di Risparmio italiane et il loro riordinamento legale: *C. Bottoni;* Osservazioni sulla finanza italiana: *M. Pantaleoni;* Rivista della cooperazione: *U. Rabbeno;* Rivista dell' Agricoltura: *D. Lampertico*	The Editor
Japan—	
A Brief Review of the Operations of the Home Department in connection with the Cholera Epidemic of the eighteenth year of Meiji (1885). Diagrams, 8vo.	The Director of the Central Sanitary Bureau
Eleventh Annual Report of the Minister of Education for the sixteenth year of Meiji (1883). 8vo.	The Japanese Legation, London
Imperial University of Japan. Calendar for the year 1886-87. 8vo.	The University
Netherlands—	
Statistik der Geboorten en der Sterfte naar den Leeftijd ende oorzaken van den dood in Nederland. Juli—September, 1886	The Department of the Interior
Bijdragen von het Statistisch Instituut. No. 3, 1886. Tweede Jaargang	The Statistical Institute
Russia—	
Agricultural Year-book for 1886. Part 2. (In Russian.) Maps	The Department of Agriculture
Journal of the Ministry of Finance. (Current weekly numbers.) (In Russian.) 1887	M. A. Vessélovsky, St. Petersburg
Reglement Définitif du Budget de l'Empire pour l'exercice, 1885. 8vo.	
Renseignements sur la Propriété Foncière dans les Gouvernements de la Vistule. Tableaux Statistiques. (In Russian and French.) 2 vols., 8vo. 1886	The Central Statistical Committee, Ministry of the Interior
Statistique Financière de la Russie en 1862-84. (In Russian and French.) 8vo.	
Statistique des Recrues, 1874-83. (In Russian.) 8vo.	
Spain—	
Boletin Mensual de Estadistica Demografico-Sanitaria de la Peninsula e Islas adyacentes. Año VII. Abril (contains "Balance Demografico-Sanitario de Nacimientos y Defunciones ocurridos durante el quinquenio ultimo de 1880-84"), Mayo—Junio, 1885. 4to.	The Department of Health, Ministry of the Interior
Memorias Comerciales y Suplemento, 1886-87—	
Sheet 24. Swansea, Lisboa y Mendoza	The Board of Customs
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,, 2. ,, Filadelfia	
,, 3. Newcastle	
,, 4. ,, Munich, Rotterdam, Cardiff	

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(a) **Foreign Countries**—*Contd.*	
Spain—*Contd.*	
El Economista. Año II, No. 3. 1887	The Editor
Boletin de la Sociedad Geografica de Madrid. Setiembre y Octubre, 1886	The Society
Sweden and Norway—	
NORWAY—	
Norges Officielle Statistik. Tredie Række—	
17. Uddrag af Aarsberetninger fra de forenede Rigers Konsuler for Aaret 1885. 1st—4de Hefte. (Consular Reports)	The Central Statistical Bureau, Christiania
27. Beretning om Skolevœsenets Tilstand i Kongeriget Norge for aaret 1881. (Public Instruction)	
28. Oversigt over Sindssygeasylernes Virksomhed i Aaret 1885. (Lunatic Asylums)	
29. Tabeller vedkommende Norges Fiskerier i Aaret 1885 samt Beretninger angaaende deres Drift m. V. (Fisheries)	
30. Tabeller vedkommende Folkemoengdens Bevœgelse i aarene 1881-85. IV. Tabeller for Aaret 1884. (Movement of Population)	
Statistik Aarbog for Kongeriget Norge, Sjette Aargang 1885-86. (Statistical Yearbook)	
SWEDEN—	
Bidrag till Sveriges Officiela Statistik—	
B. Rattsväsendet. Chefens főr Kongl. Justitie-Departementet Underdåniga Embetsberättelse år 1885. (Judicial Statistics)	The Central Statistical Bureau, Stockholm
G. Fångvården, Fångvårds-Styrelsens underdåniga Berättelse főr år 1885. (Prisons)	
K. Helso-och Sjukvården. Ofverstyrelsens öfver Hospitalen underdåniga Berättelse főr år 1885. (Lunacy)	
L. Statens Jernvagstrafik. Trafik-Styrelsens underdåniga Berättelse főr år 1885. (Railways.) Diagram	
N. Jordbruk ock Boskapsskötsel . . . főr år 1886. (Agricultural Statistics)	
P. Undervisningsväsendet. Berättelse om Statens Allmanna Läroverk főr Gossar läseåret 1878-79, 1879-80. (Education)	
Q. Skogsvasendet . . . főr år 1885. (Forests.) Diagrams	
S. Allmanna Arbeten . . . főr året 1885. (Public Works)	
Statistisk Tidskrift. Nos. 2, 3, 1886. 8vo.	
Embetsberättelse főr år 1875, 1877. Diagrams, sm. 4to	—
Berättelse till Kongl. Medicinalstyrelsen om Allmänna Helsotillståndet i Stockholm under året 1879. Plan, 8vo.	
United States—	
Department of Agriculture. Monthly Reports on the Condition of Crops, &c. Nov.—Feb., 1886-87	The Department of Agriculture

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(a) **Foreign Countries**—*Contd.*	
United States—*Contd.*	
Annual Report and Statements of the Chief of the Bureau of Statistics on Commerce and Navigation for the year ended 30th June, 1886. Part 1. Foreign Commerce, Immigration, and Tonnage. (Containing Tables of Average Export Prices, 1855-86; Foreign Commerce with other Countries, 1860-85; Exports and Imports, Values, 1843-86; Immigrants, Number of—, 1821-86; Merchant Tonnage, 1789-1886, &c.)	The Bureau of Statistics, Treasury Department
Annual Report of the Chief of the Bureau of Statistics on Foreign Commerce for the year ending 30th June, 1886	
Quarterly Report of the Chief of the Bureau of Statistics relative to Imports, Exports, Immigration, and Navigation for the three months ending 30th September, 1886. [No. 1, 1886-87]	
Summary Statement of Imports and Exports. Nos. 5 and 6, 1886-87	
Annual Report of the Comptroller of the Currency. . . December, 1886. Diagram, 8vo.	The Comptroller of the Currency
Annual Report of the Secretary of the Treasury on the State of the Finances for 1886. Vol. i. Finance. Vol. ii. Collection of Duties. Diagrams, 8vo.	The Secretary of the Treasury
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Bankers' Magazine. Jan.—March, 1887. New York	The Editor
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Commercial and Financial Chronicle and Hunt's Merchant's Magazine. (Current weekly numbers.) 1887	,,
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Science. Vol. viii, Nos. 181, 197, 198, 202, 204, 1886. 4to.	The Editor
Science and Education. Vol. i, Nos. 2 and 3, 1886-87. 4to.	,,
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Statistical and Social Inquiry Society of Ireland. Journal, vol. ix, No. 2, 1887. (Contents): Address at the Opening of the Fortieth Session, by the President, *J. McDonnell*. Considerations as to an Extended Scheme of Land Purchase, by *R. L. Cherry*. The Purchase of Land (Ireland) Act, 1885, generally known as Lord Ashbourne's Act, by *J. H. Edge*. The Prices of some Agricultural Produce, and the Cost of Farm Labour for the past fifty years, by *R. M. Barrington*. The Congested Districts of Ireland, and how to deal with them, by *E. O'Farrell*. Graduated Taxation in Switzerland, by *M. O'Brien*	The Society
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PERIODICAL RETURNS.

REGISTRATION OF THE UNITED KINGDOM.

No. I.—ENGLAND AND WALES.

MARRIAGES—To 30th September, 1886.

BIRTHS and DEATHS—To 31st December, 1886.

A.—*Serial Table of* Marriages, Births, *and* Deaths, *returned in the Years* 1886-80, *and in the* Quarters *of those Years.*

Calendar Years, 1886-80:—*Numbers.*

Years.........	'86.	'85.	'84.	'83.	'82.	'81.	'80.
Marriages No.	—	197,745	204,301	206,384	204,405	197,290	191,965
Births........ ,,	903,216	894,270	906,750	890,722	889,014	883,642	881,643
Deaths .... ,,	537,078	522,750	530,828	522,997	516,654	491,935	528,624

Quarters *of each Calendar Year,* 1886-80.

(I.) Marriages:—*Numbers.*

Qrs. ended last day of	'86.	'85.	'84.	'83.	'82.	'81.	'80.
March......... No.	39,117	39,111	41,614	44,096	39,820	38,043	41,238
June .... ,,	50,209	52,054	53,752	48,057	52,905	50,370	45,844
September ,,	48,526	49,476	50,336	52,239	51,207	48,607	47,703
December ,,	—	57,104	58,599	61,992	60,473	60,270	57,180

(II.) Births:—*Numbers.*

Qrs. ended last day of	'86.	'85.	'84.	'83.	'82.	'81.	'80.
March......... No.	230,671	231,955	224,689	232,156	223,616	225,451	221,699
June .... ,,	230,924	222,142	231,135	228,676	227,425	225,303	232,920
September ,,	224,029	218,558	225,985	214,233	220,382	215,966	219,023
December ,,	217,592	221,615	224,941	215,657	217,591	216,922	208,001

(III.) Deaths:—*Numbers.*

Qrs. ended last day of	'86.	'85.	'84.	'83.	'82.	'81.	'80.
March......... No.	156,908	147,721	132,150	146,832	140,121	138,312	145,787
June .... ,,	125,172	132,340	127,904	133,789	125,107	120,811	125,366
September ,,	125,252	114,308	134,882	113,117	118,235	110,204	131,241
December ,,	129,746	128,381	135,892	129,259	133,191	122,608	126,230

Annual Rates of MARRIAGES, BIRTHS, *and* DEATHS, *per* 1,000 PERSONS LIVING *in the Years* 1886-80, *and in the* QUARTERS *of those Years.*

Calendar YEARS, 1886-80 :—*General Ratios.*

YEARS...........	'86.	Mean '76-85.	'85.	'84.	'83.	'82.	'81.	'80.
Estmtd. Popln. of England *in thousands* in middle of each Year....	27,871,	—	27,499,	27,132,	26,771,	26,414,	26,062,	25,714,
Persons Married	—	15·2	14·4	15·1	15·4	15·5	15·1	14·9
Births	32·4	34·4	32·5	33·4	33·3	33·7	33·9	34·3
Deaths................	19·3	20·1	19·0	19·6	19·5	19·6	18·9	20·6

QUARTERS *of each Calendar Year,* 1886-80.

(I.) PERSONS MARRIED :—*Ratio per* 1,000.

Qrs. ended last day of	'86.	Mean '76-85	'85.	'84.	'83.	'82.	'81.	'80.
March	11·4	12·5	11·5	12·3	13·4	12·2	11·8	12·9
June....................	14·5	15·5	15·2	15·9	14·4	16·1	15·5	14·3
September	13·8	15·0	14·3	14·7	15·5	15·4	14·8	14·7
December	—	17·9	16·5	17·1	18·4	18·2	18·4	17·6

(II.) BIRTHS :—*Ratio per* 1,000.

Qrs. ended last day of	'86.	Mean '76-85.	'85.	'84.	'83.	'82.	'81.	'80.
March	33·6	35·4	34·2	33·2	35·2	34·3	35·1	34·6
June....................	33·2	35·1	32·4	34·2	34·3	34·5	34·7	36·3
September	31·9	33·5	31·5	33·0	31·7	33·1	32·9	33·8
December	31·0	33·4	32·0	32·9	32·0	32·7	33·0	32·1

(III.) DEATHS :—*Ratio per* 1,000.

Qrs. ended last day of	'86.	Mean '76-85.	'85.	'84.	'83.	'82.	'81.	'80.
March	22·8	22·2	21·8	19·5	22·2	21·5	21·5	22·7
June....................	18·0	19·9	19·3	18·9	20·0	19·0	18·6	19·6
September	17·8	18·2	16·5	19·7	16·8	17·8	16·8	20·3
December	18·5	19·9	18·5	19·9	19·2	20·0	18·7	19·5

B.—*Comparative Table of* Consols, Provisions, Coal, *and* Pauperism *in each* Quarter *of* 1884-85-86.

Quarters ending	Average Prices of						Pauperism.	
	Consols (for Money) per 100*l.* Stock.	Discount charged by the Bank of England.	Wheat per Quarter in England and Wales.	Meat per Pound at the Metropolitan Meat Market (by the Carcase), with the *Mean* Prices.		Coal (Seaborne) in the London Market per Ton.	Quarterly Average of the Number of Paupers Relieved on the *Last Day* of each Week.	
				Beef.	Mutton.		In-door.	Out-door.
1884	£	£	*s.* *d.*	*d.* *d.* *d.*	*d.* *d.* *d.*	*s.* *d.*		
Mar. 31	101¾	3·19	37 9	4½—7¾ 6⅛	5—8¾ 6⅞	15 3	186,636	536,767
June 30	101⅞	2·42	37 6	4½—7⅝ 6⅛	5⅛—9 7⅛	14 11	173,749	523,182
Sept. 30	100¾	2·00	35 11	4⅜—7¾ 6⅛	4⅞—8⅞ 6⅞	15 11	168,076	513,981
Dec. 31	100¾	4·17	31 7	4⅛—7½ 5⅞	4⅝—8 6⅜	15 11	181,776	518,811
1885								
Mar. 31	98⅞	4·24	32 9	4—7 5½	4¼—7½ 5⅞	15 9	189,718	546,688
June 30	98¼	2·75	34 10	4¼—6¾ 5½	4⅞—8⅛ 6½	15 9	173,498	524,628
Sept. 30	99⅞	2·00	32 10	3¾—6¾ 5¼	4¼—7¾ 6	14 10	167,185	513,326
Dec. 31	100	2·68	30 9	3⅜—6¾ 5⅛	3½—7 5¼	16 3	183,503	528,885
1886								
Mar. 31	100½	2·75	29 9	3½—6¼ 4⅞	3⅞—7¼ 5⅝	15 9	194,033	579,624
June 30	101	2·50	31 4	3⅝—6½ 5⅛	4¾—9⅛ 7	14 5	176,074	557,673
Sept. 30	101⅛	2·90	31 9	3⅜—6½ 5	4¼—8¼ 6¼	14 6	168,225	529,404
Dec. 31	101	4·06	31 4	3⅛—6⅛ 4⅝	3⅝—7⅞ 5¾	15 –	183,226	536,226

C.—*Special Average Death-Rate Table:*—Annual Rate *of* Mortality *per* 1,000 *in* Town *and* Country Districts *of* England *in each Quarter of the Years* 1886-84.

	Area in Statute Acres.	Population Estimated in the middle of 1886.	Quarters ending	Annual Rate of Mortality per 1,000 in each Quarter of the Years			
				1886.	Mean '76-85.	1885.	1884.
In 134 Districts, and 57 Sub-districts, comprising the *Chief Towns*	3,184,419	16,969,692	March ..	23·6	23·5	22·3	20·5
			June	18·3	20·9	20·2	19·9
			Sept.	19·4	19·9	17·8	21·8
			Dec.	19·7	21·7	19·7	21·3
			Year	20·3	21·5	20·0	20·9
			Year	17·8	18·0	17·5	17·4
In the remaining Districts and Sub-districts of England and Wales, comprising chiefly *Small Towns* and *Country Parishes*	34,134,802	10,900,894	March ..	21·6	20·5	21·0	18·0
			June ...	17·5	18·5	18·0	17·3
			Sept.	15·4	15·6	14·4	16·5
			Dec.	16·5	17·4	16·7	17·6

Note.—In calculating these rates of mortality corrections are made for inequalities in the numbers of days in the different quarters of the year. The annual rates are the means of the four quarterly rates.

D.—*Special Town Table:*—Population; Birth-Rate *and* Death-Rate *in each Quarter of* 1886, *in* Twenty-Eight *Large Towns.*

Cities and Boroughs.	Estimated Population in the Middle of the Year 1886.	Annual Rate to 1,000 Living during the Thirteen Weeks ending							
		3rd April. (1st Quarter.)		3rd July. (2nd Quarter.)		2nd October. (3rd Quarter.)		1st Jan., 1887. (4th Quarter.)	
		Births.	Deaths.	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.
Twenty-eight towns	9,093,817	34·7	24·4	33·1	18·6	32·8	20·4	32·1	20·3
London	4,149,533	34·3	24·9	31·9	17·2	31·7	18·7	31·4	18·8
Brighton	116,416	25·9	21·3	24·9	15·3	26·3	17·0	24·8	14·9
Portsmouth	136,278	36·0	27·1	36·6	23·9	38·4	24·7	34·0	19·6
Norwich	92,028	36·2	24·0	35·2	17·1	34·0	28·0	33·5	24·2
Plymouth	76,584	31·4	29·2	32·4	21·4	29·7	19·4	33·0	23·8
Bristol	220,915	31·0	21·5	30·6	16·8	31·2	17·0	29·4	21·9
Wolverhampton	80,012	36·7	23·1	36·4	18·6	33·1	20·0	34·5	27·2
Birmingham	434,381	34·2	22·4	33·4	19·7	32·7	19·9	31·9	17·7
Leicester	139,606	37·3	19·7	34·3	17·3	34·1	24·4	34·0	19·7
Nottingham	217,733	38·8	25·0	36·3	18·1	35·3	19·9	32·7	18·5
Derby	91,823	36·7	21·8	32·3	16·9	31·3	16·7	33·0	17·4
Birkenhead	95,370	33·2	21·4	33·3	16·6	35·6	22·0	33·0	16·6
Liverpool	586,320	35·0	26·7	34·2	20·2	33·1	24·2	31·7	24·3
Bolton	111,214	35·4	26·5	35·8	23·1	30·8	21·8	34·7	21·1
Manchester	376,895	37·3	29·5	36·6	25·2	36·0	25·0	35·2	25·7
Salford	211,241	36·2	24·1	33·2	18·8	35·3	24·7	32·8	20·7
Oldham	130,216	33·8	22·0	33·6	22·6	31·6	22·0	31·1	24·6
Blackburn	114,689	36·9	30·9	37·7	25·1	33·7	23·0	30·7	23·2
Preston	101,340	40·7	28·4	39·0	30·3	40·9	28·8	37·3	28·2
Huddersfield	88,670	25·9	23·3	24·9	17·6	27·2	17·4	30·1	20·1
Halifax	78,287	28·7	24·0	30·9	22·1	28·9	20·4	26·8	24·5
Bradford	219,411	29·4	21·0	29·3	18·2	29·1	18·5	27·3	18·8
Leeds	339,057	35·1	22·3	33·8	19·2	33·7	22·0	32·9	24·1
Sheffield	310,957	35·0	21·1	33·7	17·1	34·2	21·5	33·5	19·4
Hull	191,501	33·2	19·4	35·1	16·7	32·9	18·3	32·9	21·1
Sunderland	127,487	36·6	22·3	38·2	16·9	36·4	20·4	34·3	18·5
Newcastle	155,117	40·6	23·2	39·3	21·0	39·7	21·6	38·2	23·2
Cardiff	100,736	44·6	25·5	42·0	18·3	42·4	24·5	41·5	22·0
Edinburgh	254,591	29·9	20·0	30·0	19·8	28·4	17·5	29·0	19·5
Glasgow	521,999	40·1	29·0	40·3	24·8	36·8	20·9	35·0	25·9
Dublin	353,082	29·7	33·5	30·4	25·6	29·2	22·0	26·6	26·7

E.—*Divisional Table:*—MARRIAGES *in the Year ending* 30*th September; and* BIRTHS *and* DEATHS *in the Year ending* 31*st December*, **1886**, *as Registered Quarterly.*

1	2	3	4	5	6	7
			MARRIAGES in Quarters ending			
DIVISIONS. (England and Wales.)	AREA* in Statute Acres.	Enumerated POPULATION, 1881.	31st December, 1885.	31st March, 1886.	30th June, 1886.	30th September, 1886.
		No.	No.	No.	No.	No.
ENGLD. & WALES....*Totals*	37,319,221	25,974,439	57,045	39,117	50,209	48,526
I. London	75,362	3,816,483	9,733	6,597	8,778	9,273
II. South-Eastern	3,994,431	2,487,076	5,174	3,295	4,362	4,181
III. South Midland........	3,201,325	1,596,259	3,384	1,803	2,514	2,701
IV. Eastern	3,211,441	1,343,524	3,260	1,659	2,102	1,971
V. South-Western	4,981,170	1,859,198	3,557	2,742	3,282	3,027
VI. West Midland	3,945,460	3,029,319	6,437	4,118	5,681	5,189
VII. North Midland........	3,535,445	1,637,865	3,490	2,248	3,378	2,741
VIII. North-Western........	1,998,914	4,108,184	8,638	7,124	8,460	8,614
IX. Yorkshire	3,702,384	2,894,759	6,486	4,582	5,563	5,359
X. Northern	3,547,947	1,624,213	3,329	2,584	3,165	2,897
XI. Monmthsh. & Wales	5,125,342	1,577,559	3,557	2,365	2,924	2,573

8	9	10	11	12	13	14	15	16
	BIRTHS in each Quarter of **1886** ending				DEATHS in each Quarter of **1886** ending			
DIVISIONS. England and Wales.)	31st March.	30th June.	30th September.	31st December.	31st March.	30th June.	30th September.	31st December.
	No.	No.	No.	No.	No.	No.	No.	No.
ENGLD. & WALES....*Totals*	230,671	230,924	224,029	217,592	156,908	115,172	125,252	129,746
I. London	35,477	32,980	32,743	32,500	25,709	17,768	19,351	19,429
II. South-Eastern	20,732	20,192	20,135	19,041	14,172	10,957	10,712	10,446
III. South Midland........	14,033	14,163	13,408	13,198	9,532	7,267	7,164	7,147
IV. Eastern	12,369	12,391	11,752	11,799	7,933	6,017	6,504	6,523
V. South-Western	14,085	14,059	13,493	13,412	11,200	8,710	7,141	8,263
VI. West Midland	26,776	26,710	25,436	24,925	17,546	14,167	13,449	14,406
VII. North Midland........	14,940	15,376	14,474	14,005	9,075	7,823	7,961	7,785
VIII. North-Western........	38,606	38,756	38,097	36,212	26,857	22,445	23,488	24,275
IX. Yorkshire	24,665	25,320	25,072	24,446	15,445	13,902	14,326	15,584
X. Northern	15,307	16,658	15,647	15,111	9,037	7,742	7,858	8,031
XI. Monmthsh. & Wales	13,681	14,319	13,772	12,943	10,402	8,374	7,298	7,857

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* These are revised figures, and will be found to differ somewhat from those first published.

F.—*General Meteorological Table,*

[Abstracted from the particulars supplied to the

1886. Months.	Temperature of										Elastic Force of Vapour.		Weight of Vapour in a Cubic Foot of Air.	
	Air.			Evaporation.		Dew Point.		Air—Daily Range.		Water of the Thames				
	Mean.	Diff. from Average of 115 Years.	Diff. from Average of 45 Years.	Mean.	Diff. from Average of 45 Years.	Mean.	Diff. from Average of 45 Years.	Mean.	Diff. from Average of 45 Years.		Mean.	Diff. from Average of 45 Years.	Mean.	Diff. from Average of 45 Years.
	°	°	°	°	°	°	°	°	°		In.	In.	Grs.	Gr.
Jan.......	36·1	−0·4	−2·4	34·7	−2·2	32·7	−2·2	9·9	+0·4	—	·186	−·015	2·2	−0·2
Feb.......	33·7	−5·0	−6·0	32·4	−5·6	30·2	−5·3	8·2	−2·9	—	·168	−·042	2·0	−0·4
Mar. ...	39·6	−1·5	−2·1	37·2	−2·1	33·9	−2·1	13·8	−1·0	—	·195	−·022	2·4	−0·1
Means...	36·5	−2·3	−3·5	34·8	−3·3	32·3	−3·2	10·6	−1·2	—	·183	−·026	2·2	−0·2
April ...	46·4	+0·3	−0·7	44·0	+0·1	41·1	+0·6	16·9	−1·5	—	·258	+·005	3·0	+0·1
May......	53·3	+0·8	+0·8	49·4	+0·6	45·5	+0·5	20·4	−0·1	—	·305	+·007	3·4	+0·1
June ...	57·8	−0·4	−1·1	53·1	−1·4	48·9	−1·8	21·7	+0·7	—	·346	−·024	3·8	−0·4
Means...	52·5	+0·2	−0·4	48·8	−0·2	45·2	−0·2	19·7	−0·3	—	·303	−·002	3·4	−0·1
July......	63·0	+1·3	+0·8	57·9	+0·2	53·2	−0·8	22·2	+1·2	—	·406	−·012	4·5	−0·2
Aug. ...	62·0	+1·1	+0·6	58·4	+1·0	55·5	+1·6	20·5	+0·7	—	·441	+·023	4·9	+0·2
Sept. ...	58·7	+2·1	+0·6	55·1	+1·1	52·0	+0·8	18·9	+0·7	—	·388	+·008	4·3	−0·1
Means...	61·2	+1·5	+0·7	57·1	+0·8	53·6	+0·5	20·5	+0·9	—	·412	+·006	4·6	0·0
Oct.......	53·3	+3·8	+3·4	51·3	+3·4	49·2	+3·4	13·4	+1·1	—	·351	+·042	3·9	−0·1
Nov. ...	44·0	+1·6	+0·5	42·6	+1·3	41·1	+1·7	11·5	0·0	—	·258	+·013	2·9	+0·1
Dec. ...	36·5	−2·6	−2·3	35·0	−3·5	32·7	−3·7	10·2	+0·9	—	·186	−·033	2·2	−0·4
Means...	44·6	+0·9	+0·5	46·0	+0·4	41·0	+0·5	11·7	−0·1	—	·265	+·007	3·0	−0·1

Note.—In reading this table it will be borne in mind that the sign (−) minus signifies

The weather in December was for the most part dull and cold, and very exceptional, the temperature in the first week was very low, on the second day it was more than 10° below its average, and on the third day was nearly 14° below its average; from the 6th to the 15th it was mostly mild, and very cold from the 16th to the end of the month, particularly so on the 18th, 19th, 20th, and 21st, the mean temperature of the four days was 27° or 12¾° below their average. The atmospheric pressure was very remarkable, till the 5th day it was a little in excess of its average, and then nearly constantly below till the 29th day, and particularly so on the 8th and 9th, whose average daily pressure was nearly 1·4 inch below their averages. The low readings of the barometer on the 8th and 9th were very extraordinary, at Blackheath on the 8th the reading was nearly stationary from 8 p.m. to near midnight at 28·157 inches, it then rose to 28·16 inches by 2 a.m. on *for the Year ended* 31*st December*, **1886.**

Registrar-General by James Glaisher, Esq., F.R.S., &c.]

Degree of Humidity.		Reading of Barometer.		Weight of a Cubic Foot of Air.		Rain.		Daily Horizontal Movement of the Air.	Reading of Thermometer on Grass.					1886.
									Number of Nights it was			Lowest Reading at Night.	Highest Reading at Night.	
Mean.	Diff. from Average of 45 Years.	Mean.	Diff. from Average of 45 Years.	Mean.	Diff. from Average of 45 Years.	Amnt.	Diff. from Average of 71 Years.		At or below 30°.	Between 30° and 40°.	Above 40°.			Months.
		In.	In.	Grs.	Grs.	In.	In.	Miles.				°	°	
88	+ 1	29·475	− ·280	551	− 3	3·67	+1·79	354	18	12	1	16·5	41·9	January
87	+ 2	29·945	+ ·159	563	+10	0·56	−1·01	206	16	12	0	18·9	34·9	Feb.
80	− 1	29·792	+ ·040	553	+ 3	1·13	−0·37	342	18	6	7	17·2	47·1	March
85	+ 1	29·737	+ ·027	556	+ 3	Sum 5·36	Sum +0·14	Mean 301	Sum 52	Sum 30	Sum 8	Lowest 16·5	Highst 47·1	Means
82	+ 2	29·743	− ·004	544	+ 1	1·26	−0·49	355	1	27	2	24·0	41·1	April
76	− 3	29·758	− ·030	537	− 3	4·23	+2·18	255	6	13	12	18·8	50·2	May
73	− 2	29·805	− ·002	533	+ 1	0·44	−1·55	259	1	10	19	28·6	47·8	June
77	− 1	29·769	− ·012	538	0	Sum 5·93	Sum +0·14	Mean 290	Sum 8	Sum 50	Sum 33	Lowest 18·8	Highst 50·2	Means
72	− 3	29·747	− ·051	526	− 2	2·51	0·00	256	0	4	27	37·9	53·8	July
79	+ 3	29·816	+ ·033	528	− 1	1·12	−1·25	223	0	3	28	34·7	58·2	August
79	− 2	29·856	+ ·059	532	− 1	1·24	−1·21	279	0	12	18	31·0	56·1	Sept.
77	− 1	29·806	+ ·014	529	− 1	Sum 4·87	Sum −2·46	Mean 253	Sum 0	Sum 19	Sum 73	Lowest 31·0	Highst 58·2	Means
86	− 2	29·618	− ·092	534	− 6	1·41	−1·40	203	1	13	17	28·9	48·1	October
89	0	29·732	− ·010	547	− 1	3·02	+0·69	253	9	19	2	23·4	41·0	Nov.
86	− 2	29·522	− ·273	551	− 2	3·60	+1·62	367	20	10	1	15·0	44·0	Dec.
87	− 1	29·624	− ·125	544	− 3	Sum 8·03	Sum +0·91	Mean 274	Sum 30	Sum 42	Sum 20	Lowest 15·0	Highst 48·1	Means

below the average, and that the sign (+) plus signifies above the average.

the 9th and then decreased to 28·14 inches by 7 a.m, a point lower than any reading since 1843 on January 13th, when it was 28·096 inches.

Previous instances of such low readings at Greenwich are 1783, March 6th, the readings being 28·22 inches, 1809, on December 17th, when it was 28·20 inches, and 1821, on December 25th, when it was 27·89 inches. Rain fell on five days out of six at southern stations, and was above its average at all stations; on the 26th rain fell at Blackheath to the depth of 0·24 inch by 5 p.m., after this snow began to fall, and was 8 inches in depth at 10 p.m., it continued to fall till 2 or 3 o'clock on the 27th, and at 8 a.m. on level places there was snow to the depth of 12 inches, and which produced very nearly $1\frac{3}{4}$ inches of water; this was the most dense snow I have known, usually one foot of fresh fallen snow produces one inch of water, the density of this snow caused great injury to telegraph poles, and breaking off many branches of trees.

No. II.—SCOTLAND.

BIRTHS, DEATHS, AND MARRIAGES, IN THE YEAR ENDED 31ST DECEMBER, 1886.

I.—*Serial Table:—Number of* BIRTHS, DEATHS, *and* MARRIAGES *in Scotland, and their Proportion to the Population estimated to the Middle of each Year, during each Quarter of the Years* 1886-82 *inclusive.*

	1886.		1885.		1884.		1883.		1882.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
1st Quarter—										
Births	31,880	3·27	30,878	3·20	30,889	3·21	31,342	3·32	31,206	3·30
Deaths	20,516	2·11	21,936	2·27	19,115	1·99	22,012	2·33	18,265	1·93
Marriages ..	6,229	0·64	6,408	0·66	6,679	0·70	6,530	0·69	6,589	0·70
Mean Temperature	35°·3		35°·7		40°·0		38°·2		42°·2	
2nd Quarter—										
Births	33,381	3·39	32,404	3·33	33,897	3·52	32,420	3·40	33,346	3·52
Deaths	18,555	1·88	18,793	1·93	18,751	1·95	20,386	2·14	18,293	1·93
Marriages ..	6,091	0·62	6,363	0·65	6,673	0·69	6,814	0·71	6,609	0·69
Mean Temperature	47°·7		47°·6		48°·7		48°·6		48°·8	
3rd Quarter—										
Births	31,603	3·17	31,274	3·17	32,294	3·32	30,087	3·12	30,718	3·25
Deaths	16,263	1·63	15,981	1·62	17,555	1·81	16,537	1·72	16,886	1·78
Marriages ..	5,612	0·56	5,679	0·58	5,729	0·59	5,890	0·62	5,957	0·63
Mean Temperature	54°·9		54°·0		56°·6		55°·0		55°·5	
4th Quarter—										
Births	31,063	3·12	31,554	3·20	31,961	3·29	30,163	3·17	30,912	3·27
Deaths	18,288	1·84	17,893	1·82	19,707	2·03	17,932	1·86	19,522	2·06
Marriages ..	6,537	0·66	6,806	0·69	6,980	0·72	7,621	0·79	7,419	0·78
Mean Temperature	41°·8		40°·3		41°·3		42°·1		40°·2	
Year—										
Population.	3,949,393		3,907,736		3,866,521		3,825,744		3,785,400	
Births	127,927	3·24	126,110	3·23	129,041	3·34	124,162	3·25	126,182	3·33
Deaths	73,622	1·86	74,603	1·91	75,128	1·94	76,867	2·01	72,966	1·93
Marriages ..	24,469	0·62	25,256	0·65	26,061	0·67	26,855	0·80	26,574	0·70

.—*Special Average Table:—Number of Births, Deaths, and Marriages in Scotland and in the Town and Country Districts for each Quarter of the Year ending* 31st *December*, **1886**, *and their Proportion to the Population; also the Number of Illegitimate Births, and their Proportion to the Total Births.*

Registration Groups of Districts.	Total Births.			Illegitimate Births.			Deaths.			Marriages.		
	Number.	Per Cent.	Ratio. One in every	Number	Per Cent.	Ratio. One in every	Number.	Per Cent.	Ratio. One in every	Number.	Per Cent.	Ratio. One in every
t Quarter—												
SCOTLAND	31,880	3·27	31	2,699	8·5	11·8	20,516	2·11	47	6,229	0·64	156
Principal towns	13,261	3·49	29	1,063	8·0	12·5	8,927	2·35	42	2,958	0·78	128
Large ,,	3,820	3·66	27	246	6·4	15·5	2,399	2·30	43	719	0·69	145
Small ,,	6,769	3·26	31	561	8·3	12·0	4,235	2·04	49	1,232	0·59	168
Mainland rural	7,224	2·88	35	771	10·7	9·4	4,421	1·76	57	1,123	0·45	223
Insular ,,	806	2·52	40	58	7·2	13·9	534	1·67	60	197	0·62	162
nd Quarter—												
SCOTLAND	33,381	3·39	30	2,601	7·8	12·8	18,555	1·88	53	6,091	0·62	161
Principal towns	13,759	3·58	28	1,020	7·4	13·6	8,072	2·10	48	2,856	0·74	136
Large ,,	3,925	3·72	27	254	6·5	15·4	2,019	1·91	52	665	0·63	160
Small ,,	7,214	3·44	29	519	7·2	14·0	3,911	1·86	54	1,142	0·54	184
Mainland rural	7,750	3·06	33	757	9·8	10·2	4,055	1·60	63	1,351	0·53	188
Insular ,,	733	2·27	44	51	6·9	14·5	498	1·54	65	77	0·24	419
rd Quarter—												
SCOTLAND	31,603	3·17	32	2,664	8·4	11·9	16,263	1·63	61	5,612	0·56	179
Principal towns	12,671	3·26	31	966	7·6	13·1	7,125	1·83	54	2,928	0·75	133
Large ,,	3,801	3·56	28	262	6·9	14·5	1,917	1·79	56	681	0·64	155
Small ,,	6,912	3·26	31	622	9·0	11·1	3,301	1·56	64	1,045	0·49	204
Mainland rural	7,368	2·88	35	762	10·3	9·7	3,482	1·36	73	903	0·35	314
Insular ,,	851	2·61	38	52	6·1	16·3	438	1·34	75	55	0·16	620
th Quarter—												
SCOTLAND	31,063	3·12	32	2,539	8·2	12·2	18,288	1·84	54	6,537	0·66	152
Principal towns	12,647	3·26	31	972	7·7	13·0	8,107	2·09	48	2,830	0·73	137
Large ,,	3,668	3·44	29	226	6·2	16·2	2,103	1·97	51	681	0·64	157
Small ,,	6,723	3·17	32	590	8·8	11·4	3,703	1·75	57	1,374	0·65	154
Mainland rural	7,153	2·80	36	704	9·8	10·2	3,857	1·51	66	1,504	0·59	170
Insular ,,	872	2·67	37	47	5·4	18·6	518	1·59	63	148	0·45	221

Population of Scotland.

Population.	Scotland.	Principal Towns.	Large Towns.	Small Towns.	Mainland Rural.	Insular Rural.
y Census of 1881	3,735,573	1,412,350	388,797	791,250	1,012,788	130,388
stimated to the middle of 1886	3,949,393	1,540,808	423,009	840,821	1,015,197	129,558

III.—*Bastardy Table:—Proportion of* ILLEGITIMATE *in every Hundred* BIRTHS *in the Divisions and Counties of* SCOTLAND, *during each quarter of the Year ending* 31*st December*, 1886; *with the Corresponding Figures for* 1885 *added for Comparison.*

Divisions and Counties.	Per Cent. for the Quarters ending 1886.				Per Cent. for the Quarters ending 1885.			
	31st March.	30th June.	30th Sept.	31st Dec.	31st March.	30th June.	30th Sept.	31st Dec.
SCOTLAND …………	8·5	7·8	8·4	8·2	8·7	8·3	11·9	8 ·5
Divisions—								
Northern ………………	8·8	8·2	8·4	6·0	9·7	9·8	6·4	7·2
North-Western………	6·6	6·2	6·2	4·7	7·1	7·4	5·6	6·2
North-Eastern ………	15·9	13·3	13·8	14·3	14·7	13·7	14·1	14·2
East Midland ………	8·5	8·3	9·0	8·4	9·5	9·2	8·5	9·2
West Midland ………	7·2	5·9	6·3	6·1	6·6	6·2	6·4	5·9
South-Western………	6·5	6·2	7·0	6·6	6·7	6·7	7·0	6·9
South-Eastern ………	8·0	7·3	7·1	8·0	8·6	7·5	8·0	8·0
Southern ………………	14·0	12·7	14·6	13·3	14·5	13·1	13·6	15·9
Counties—								
Shetland ………………	7·3	4·3	5·0	4·1	7·3	9·2	3·5	6·3
Orkney ………………	7·6	7·4	7·6	3·8	9·1	7·2	5·3	7·2
Caithness………………	14·9	12·6	12·4	10·1	12·8	13·4	9·4	9·7
Sutherland …………	4·0	5·6	5·1	3·8	6·4	5·4	6·2	2·9
Ross and Cromarty	5·1	6·2	5·3	2·4	5·4	5·9	4·1	3·6
Inverness …………	7·9	6·3	7·1	7·0	8·6	8·7	7·3	8·5
Nairn …………………	16·0	9·6	16·9	14·3	11·3	14·5	13·1	6·2
Elgin …………………	16·0	15·7	12·6	14·8	13·6	16·2	17·1	13·5
Banff …………………	18·7	13·3	16·1	16·5	23·6	16·2	15·0	14·9
Aberdeen………………	15·3	13·2	13·6	14·3	13·5	13·1	13·9	14·4
Kincardine …………	15·8	11·7	12·1	9·6	13·2	10·2	10·4	13·6
Forfar ………………	9·9	9·1	9·8	10·3	11·2	10·2	9·7	10·3
Perth …………………	8·1	8·6	12·1	7·5	11·1	10·4	10·4	10·0
Fife ……………………	6·6	7·0	6·0	6·5	5·9	6·9	5·7	7·3
Kinross ……………	9·8	14·3	5·4	7·3	17·1	15·2	12·5	7·9
Clackmannan ………	6·1	4·8	9·6	6·7	7·6	6·9	6·9	8·4
Stirling ……………	7·9	5·6	6·1	7·3	8·3	7·4	6·4	5·4
Dumbarton…………	4·6	4·5	5·8	5·0	4·7	4·9	4·7	5·9
Argyll ………………	9·8	8·7	6·7	5·7	6·0	5·5	8·0	7·2
Bute …………………	7·0	3·6	9·7	6·7	8·0	6·1	8·8	4·5
Renfrew ……………	5·3	5·0	5·7	6·0	6·3	5·5	6·6	5·9
Ayr ……………………	7·4	6·9	9·0	7·5	6·6	7·0	7·8	8·0
Lanark ……………	6·6	6·3	6·9	6·6	6·8	6·9	6·9	6·8
Linlithgow …………	8·9	7·3	6·3	7·4	6·9	6·7	5·7	5·3
Edinburgh …………	7·7	7·3	7·2	7·7	8·7	7·4	8·5	7·9
Haddington ………	6·2	4·6	7·7	7·7	9·5	8·3	5·6	10·0
Berwick ……………	15·6	10·1	6·7	13·0	8·5	6·3	10·9	9·2
Peebles ……………	7·7	8·0	4·6	14·9	8·8	7·8	8·2	11·0
Selkirk ……………	4·7	7·8	8·4	7·3	10·0	10·0	6·9	12·5
Roxburgh …………	9·3	10·4	8·4	11·1	10·3	9·7	12·4	13·0
Dumfries……………	12·8	14·3	14·9	13·9	17·4	15·9	13·3	15·1
Kirkcudbright ……	17·1	12·4	17·7	12·7	16·6	11·0	14·4	17·6
Wigtown……………	19·9	12·6	18·9	15·2	12·9	14·9	15·3	19·6

IV.—*Divisional Table:*—MARRIAGES, BIRTHS, *and* DEATHS *Registered in the Year ended* 31*st December*, 1886.

(Compiled from the Registrar-General's Quarterly Returns.)

1 DIVISIONS. (Scotland)	2 AREA in Statute Acres.	3 POPULATION, 1881. (*Persons.*)	4 Marriages.	5 Births.	6 Deaths.
		No.	No.	No.	No.
SCOTLAND .... *Totals*	19,639,377	3,735,573	24,469	127,927	73,622
I. Northern	2,261,622	123,984	575	3,066	1,908
II. North-Western	4,739,876	165,856	681	4,331	2,703
III. North-Eastern	2,429,594	418,250	2,476	14,047	6,792
IV. East Midland	2,790,492	602,421	3,579	18,481	10,757
V. West Midland	2,693,176	283,460	1,555	9,342	5,296
VI. South-Western	1,462,397	1,385,447	10,340	54,004	31,498
VII. South-Eastern	1,192,524	546,658	4,115	18,520	10,940
VIII. Southern	2,069,696	209,497	1,148	6,136	3,728

No. III.—GREAT BRITAIN AND IRELAND.

SUMMARY *of* MARRIAGES, *in the Year ended* 30*th September*, 1886; *and of* BIRTHS *and* DEATHS, *in the Year ended* 31*st December*, 1886.

(Compiled from the Quarterly Returns of the respective Registrars-General.)

COUNTRIES.	[000's omitted.]		Marriages.	Per 1,000 of Population.	Births.	Per 1,000 of Population.	Deaths.	Per 1,000 of Population.
	Area in Statute Acres.	Population, 1881. (*Persons.*)						
		No.	No.	Ratio.	No.	Ratio.	No.	Ratio.
England and Wales	37,319,	25,974,	194,897	7·5	903,216	34·7	537,078	20·6
Scotland	19,639,	3,736,	24,738	6·6	127,927	34·2	73,622	19·7
Ireland	20,323,	5,175,	20,527	4·0	113,995	22·0	87,376	16·9
GREAT BRITAIN AND IRELAND	77,281,	34,885,	240,162	6·8	1,145,138	32·8	698,076	20·0

Note.—The numbers against Ireland represent the marriages, births, and deaths that the local registrars have *succeeded* in recording; but how far the registration approximates to absolute completeness, does not at present appear to be known. It will be seen that the Irish ratios of marriages, births, and deaths are much under those of England and Scotland.—ED. *S. J.*

Trade of United Kingdom, for the Years 1885-81.—*Declared Value of the Total Exports of* **Foreign** *and* **Colonial** *Produce and Manufactures to each Foreign Country and British Possession.*

Merchandise Exported to the following Foreign Countries, &c.	[000's omitted.]				
	1885.	1884.	1883.	1882.	1881.
I.—FOREIGN COUNTRIES.	£	£	£	£	£
Northern Europe; viz., Russia, Sweden, Norway, Denmark, & Iceland, & Heligoland	4,001,	4,451,	4,473,	4,674,	5,218,
Central Europe; viz., Germany, Holland and Belgium	23,685,	26,332,	25,787,	25,916,	24,702,
Western Europe; viz., France, Portugal, (with Azores, Madeira, &c.), and Spain, (with Gibraltar and Canaries)	9,266,	11,027,	13,480,	14,070,	15,102,
Southern Europe; viz., Italy, Austrian Empire, Greece, Ionian Islands, and Malta	1,423,	1,829,	1,975,	1,738,	1,426,
Levant; viz., Turkey, Roumania,* Syria and Palestine, and Egypt	978,	950,	914,	773,	786,
Northern Africa; viz., Tripoli, Tunis, Algeria, and Morocco	141,	92,	64,	142,	56,
Western Africa	215,	219,	262,	218,	186,
Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Mooria Islands	—	—	—	—	—
Indian Seas, Siam, Sumatra, Java, Philippines; other Islands	46,	72,	61,	61,	—
South Sea Islands	—	—	—	—	—
China, including **Hong Kong** and Japan	855,	970,	784,	678,	782,
United States of America	9,101,	8,312,	9,360,	7,738,	6,987,
Mexico and Central America	93,	96,	89,	124,	104,
Foreign West Indies and Hayti	774,	792,	839,	841,	15,
South America (Northern), New Granada, Venezuela and Ecuador	56,	75,	72,	90,	63,
,, **(Pacific)**, Peru, Bolivia, Chili, and Patagonia	264,	289,	282,	336,	302,
,, **(Atlantic)**, Brazil, Uruguay, and Argentine Confed.	401,	489,	555,	578,	355,
Other countries (unenumerated)	112,	124,	121,	104,	121,
Total—Foreign Countries	51,411,	56,119,	59,118,	58,081,	56,205,
II.—BRITISH POSSESSIONS.					
British India, Ceylon, and Singapore	1,802,	1,706,	1,712,	1,722,	2,031,
Austral. Cols.—New South Wales and Victoria, So. Aus., W. Aus., Tasm., and N. Zealand	2,937,	2,909,	2,623,	3,086,	2,604,
British North America	1,168,	1,034,	954,	983,	897,
,, W. Indies with Btsh. Guiana & Honduras	315,	355,	374,	327,	342,
Cape and Natal	358,	431,	443,	582,	619,
Brt. W. Co. of Af., Ascension and St. Helena	87,	77,	71,	83,	69,
Mauritius	31,	40,	74,	54,	43,
Channel Islands	197,	189,	202,	209,	204,
Other possessions	53,	82,	67,	66,	46,
Total—British Possessions	6,948,	6,823,	6,520,	7,112,	6,855,
General Total £	58,359,	62,942,	65,638,	65,193,	63,060,

* Wallachia and Moldavia to 1878, and Roumania in 1879.

Trade of United Kingdom, 1886-85-84.—*Distribution of* **Exports*** *from United Kingdom, according to their Declared Real Value; and the Declared Real Value (Ex-duty) of* **Imports** *at Port of Entry, and therefore including Freight and Importer's Profit.*

Merchandise (*excluding Gold and Silver*) Imported from, and Exported to, the following Foreign Countries, &c.	[000's omitted.] 1886. Imports from	1886. *Exports to*	1885. Imports from	1885. *Exports to*	1884 Imports from	1884 *Exports to*
I.—Foreign Countries:	£	£	£	£	£	£
Northern Europe; viz., Russia, Sweden, Norway, Denmark & Iceland, & Heligoland	28,729,	9,425,	33,466,	9,614,	32,113,	11,075,
Central Europe; viz., Germany, Holland, and Belgium	60,930,	31,026,	63,149,	33,093,	64,627,	37.409,
Western Europe; viz., France, Portugal (with Azores, Madeira, &c.), and Spain (with Gibraltar and Canaries)	48,554,	19,665,	48,115,	20,858,	50,910,	23,725,
Southern Europe; viz., Italy, Austrian Empire, Greece, Roumania, and Malta....	8,756,	9,894,	10,239,	10,185,	10,543,	11,138,
Levant; viz., Turkey, Asiatic and European (including Cyprus), and Egypt	11,291,	8,763,	13,355,	9,616,	15,009,	9,285,
Northern Africa; viz., Tripoli, Tunis, Algeria and Morocco	1,554,	823,	1,901,	869,	1,506,	770,
Western Africa	1,075,	1,095,	1,247,	1,292,	1,480,	2,009,
Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Mooria Islands	448,	469,	451,	811,	466,	590,
Indian Seas, Siam, Sumatra, Java, Philippines; other Islands	4,102,	2,358,	4,262,	2,855,	4,758,	3,379,
South Sea Islands	100,	87,	84,	88,	130,	91,
China and Japan, including Hong Kong	10,220,	9,728,	10,047,	11,023,	11,882,	9,628,
United States of America	81,368,	26,822,	86,158,	21,977,	86,054.	24,430,
Mexico and Central America	1,704,	1,580,	1,795,	1,466,	2,000,	1,916,
Foreign West Indies, Hayti, &c.	334,	2,455,	1,216,	2,245,	1,323,	2,457,
South America (Northern), New Granada, Venezuela, and Ecuador	663,	1,645,	619,	1,126,	911,	2,141,
" (Pacific), Peru, Bolivia, Chili, and Patagonia	4,110,	2,530,	4,559,	2,177,	4,917,	3,225,
" (Atlantic) Brazil, Uruguay, and Argentine Republic	5,551,	12,512,	6,588,	11,412,	6,519,	13,865,
Whale Fisheries; Grnlnd., Davis' Straits, Southn. Whale Fishery, Falkland Islands, and French Possessions in North America	155,	39,	144,	26,	228,	27,
Total—Foreign Countries	269,644,	140,916,	287,395,	140,733,	295,376,	157,160,
II.—British Possessions:						
British India, Ceylon, and Singapore	38,580,	34,015,	38,755,	32,182,	41,566,	33,964,
Austral. Cols.—N. So. W., Victoria & Queensld.	13,223,	16,598,	16,018,	18,245,	18,409,	17,127,
" " So. Aus., W. Aus., Tasm., N. Zealand, & Fiji Islands	7,744,	5,786,	10,098,	6,903,	9,970,	6,748,
British North America	10,395,	7,887,	10,329,	7,207,	11,125,	8,648,
" W. Indies with Btsh. Guiana & Honduras	3,166,	2,422,	4,185,	2,497,	5,213,	3,236,
Cape and Natal	4,658,	3,308,	5,134,	3,826,	5,950,	4,104,
Brt. W. Co. of Af., Ascension and St. Helena	813,	805,	880,	663,	1,087,	938,
Mauritius	310,	261,	310,	263,	357,	389,
Channel Islands	887,	466,	800,	512,	851,	613,
Total—British Possessions	79,776,	71,548,	86,509,	72,298,	94,528,	75,767,
General Total .... £	349,420,	212,464,	373,904,	213,031,	389,904,	232,927,

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* *i.e.*, British and Irish produce and manufactures.

IMPORTS.—(United Kingdom.)—**For the Years 1886-85-84-83-82.**—*Declared Real Value (Ex-duty), at Port of Entry (and therefore including Freight and Importer's Profit), of Articles of Foreign and Colonial Merchandise Imported into the United Kingdom.*

[000's omitted.]

Foreign Articles Imported.		1886.	1885.	1884.	1883.	1882.
		£	£	£	£	£
Raw Matls.–*Textile*,&c.	Cotton, Raw ...	37,792,	36,044,	44,114,	44,279,	46,193,
	Wool	24,308,	26,248,	28,566,	26,718,	27,207,
	Silk*..................	13,269,	12,631,	15,561,	14,282,	14,905,
	Flax	2,416,	3,188,	3,028,	2,877,	3,608,
	Hemp and Jute	4,737,	5,459,	5,679,	6,877,	6,501,
	Indigo	1,891,	2,133,	2,484,	2,467,	2,610,
		84,413,	85,703,	99,432,	97,500,	101,024,
„ „ *Various.*	Hides	3,610,	3,863,	3,885,	3,804,	3,741,
	Oils	2,434,	2,987,	3,031,	3,461,	2,900,
	Metals	15,040,	16,287,	16,806,	13,997,	14,392,
	Tallow	1,297,	1,582,	2,097,	2,100,	2,256,
	Timber...............	12,531,	15,245,	15,027,	17,138,	17,168,
		34,912,	39,964,	40,846,	40,500,	40,457,
„ „ *Agrcltl.*	Guano	538,	242,	439,	722,	390,
	Seeds	6,862,	7,838,	7,574,	9,085,	8,608,
		7,400,	8,080,	8,013,	9,807,	8,998,
Tropical, &c., Produce.	Tea	11,360,	10,718,	10,567,	11,769,	11,363,
	Coffee and Chich.	3,412,	3,380,	3,826,	4,992,	5,288,
	Sugar & Molasses	15,998,	18,447,	19,854,	25,086,	24,976,
	Tobacco	3,782,	3,901,	2,777,	2,900,	2,563,
	Rice	2,466,	2,173,	2,683,	3,181,	3,297,
	Fruits	5,515,	6,015,	5,609,	4,217,	4,055,
	Wines	5,135,	5,125,	5,347,	5,460,	5,463,
	Spirits	2,032,	1,967,	1,890,	1,744,	1,875,
		49,700,	51,726,	52,553,	59,349,	58,880,
Food	Grain and Meal.	43,225,	52,749,	47,563,	67,040,	63,196,
	Provisions	38,013,	39,859,	41,696,	42,518,	36,808,
		81,238,	92,608,	89,259,	109,558,	100,004,
Remainder of Enumerated Articles		52,606,	55,457,	58,247,	61,719,	57,766,
Total Enumerated Imports		310,269,	333,538,	348,350,	378,433,	367,129,
Add for Unenumerated Imports (say)		39,112,	40,296,	41,424,	47,171,	44,872,
Total Imports		349,381,	373,834,	389,774,	425,604,	412,001,

* "Silk," inclusive of manufactured silk, "not made up."

EXPORTS.—(United Kingdom.)—**For the Years 1886-85-84-83-82.**—*Declared Real Value, at Port of Shipment, of Articles of* BRITISH *and* IRISH *Produce and Manufactures Exported from the United Kingdom.*

[000's omitted.]

BRITISH PRODUCE, &C., EXPORTED.		1886.	1885.	1884.	1883.	1882.
		£	£	£	£	£
MANFRS.—*Textile.*	Cotton Manufactures..	57,365,	55,113,	58,925,	62,937,	62,945,
	,, Yarn	11,489,	11,859,	13,812,	13,511,	12,867,
	Woollen Manufactures	19,738,	18,847,	20,131,	18,320,	18,789,
	,, Yarn	4,406,	4,383,	3,892,	3,267,	3,399,
	Silk Manufactures........	2,234,	1,957,	2,173,	2,426,	2,692,
	,, Yarn	436,	376,	613,	707,	828,
	Linen Manufactures	5,257,	4,962,	5,178,	5,439,	5,967,
	,, Yarn	935,	985,	1,137,	1,059,	1,038,
		101,860,	98,482,	105,861,	107,666,	108,525,
,, *Sewed.*	Apparel	3,902,	4,171,	3,936,	3,636,	4,170,
	Haberdy. and Mllnry.	2,094,	2,308,	2,853,	3,879,	4,258,
		5,996,	6,479,	6,789,	7,515,	8,428,
METALS, &C.	Hardware	2,847,	2,849,	3,141,	3,756,	4,112,
	Machinery	10,134,	11,075,	13,051,	13,444,	11,963,
	Iron	21,723,	21,717,	24,488,	28,584,	31,579,
	Copper and Brass........	2,904,	3,468,	4,021,	4,005,	3,782,
	Lead and Tin	1,057,	885,	891,	1,077,	1,158,
	Coals and Culm	9,837,	10,632,	10,852,	10,642,	9,561,
		48,502,	50,626,	56,444,	61,508,	62,155,
Ceramic Manufcts.	Earthenware and Glass	2,775,	2,696,	2,887,	3,280,	3,283,
Indigenous Mnfrs. and Products.	Beer and Ale................	1,583,	1,645,	1,642,	1,816,	1,872,
	Butter	165,	176,	205,	212,	220,
	Cheese	51,	52,	61,	59,	65,
	Candles	202,	200,	214,	148,	135,
	Salt..............................	592,	673,	613,	645,	570,
	Spirits	890,	859,	794,	789,	756,
	Soda	—	—	—	—	—
		3,483,	3,605,	3,529,	3,669,	3,618,
Various Manufcts.	Books, Printed	1,117,	1,143,	1,172,	1,176,	1,173,
	Furniture	—	—	—	—	—
	Leather Manufactures	2,223,	2,307,	2,299,	2,398,	2,833,
	Soap	446,	473,	548,	449,	458,
	Plate and Watches	368,	328,	322,	338,	352,
	Stationery	855,	854,	848,	883,	882,
		5,009,	5,105,	5,189,	5,244,	5,698,
Remainder of Enumerated Articles		30,725,	31,826,	34,389,	28,146,	25,844,
Unenumerated Articles............................		14,014,	14,212,	17,839,	22,802,	23,926,
TOTAL EXPORTS....................		212,364,	213,031,	232,927,	239,830,	241,477,

SHIPPING.—(United Kingdom.)—*Account of Tonnage of Vessels Entered and Cleared with Cargoes, from and to Various Countries, during the* Years *ended December*, 1886-85-84.

Countries from whence Entered and to which Cleared.	Total British and Foreign.					
	1886.		1885.		1884.	
	Entered.	Cleared.	Entered.	Cleared.	Entered.	Cleared.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
FOREIGN COUNTRIES.						
Russia Northern ports	1,194,582	1,116,107	1,407,281	1,110,765	1,416,088	1,143,731
Russia Southern ,,	402,106	178,723	516,941	221,232	373,421	279,034
Sweden	1,265,266	947,835	1,366,389	997,250	1,259,735	945,511
Norway	940,546	639,530	890,500	625,188	982,657	575,623
Denmark	269,711	880,207	267 468	891,771	262,250	879,792
Germany	1,832,189	2,969,410	2,015,290	2,882,245	1,917,595	2,922,140
Holland	1,674,672	1,493,401	1,639,986	1,555,616	1,583,316	1,578,225
Belgium	1,306,893	1,106,017	1,264,928	1,100,683	1,247,679	1,164,870
France	2,056,258	3,571,726	2,018,560	3,759,023	2,026,831	3,912,883
Spain	2,093,085	1,109,555	2,063,011	1,047,850	2,062,413	1,065,782
Portugal	146,989	396,906	160,284	388,678	189,006	424,429
Italy	231,674	1,966,114	221,028	1,792,035	205,214	1,602,221
Austrian territories	65,896	89,373	99,042	126,949	111,051	154,921
Greece	68,181	130,029	90,859	121,728	81,156	134,420
Roumania	279,841	95,694	270,897	82,142	267,366	109,107
Turkey	187,295	376,549	252,358	318,588	297,505	307,571
Egypt	317,076	688,236	418,831	800,428	328,386	769,819
United States of America	4,657,118	3,450,665	4,711,323	3,143,000	4,301,146	3,094,993
Mexico, Foreign West Indies, and Central America	107,589	357,653	175,729	378,292	195,319	430,458
Brazil	179,213	572,105	205,500	583,081	219,643	599,206
Peru	81,666	53,224	92,225	64,603	89,449	93,331
Chili	105,460	193,761	125,232	220,036	128,700	254,283
China	210,457	104,022	196,506	81,151	182,921	66,653
Other countries	1,016,637	1,319,641	1,074,334	1,405,899	980,123	1,452,419
Total, Foreign Countries	20,690,400	23,806,483	21,544,502	23,698,233	20,708,970	23,961,422
BRITISH POSSESSIONS.						
North American Colonies	1,289,206	808,262	1,294,134	751,165	1,232,903	668,630
East Indies, including Ceylon, Singapore, and Mauritius	1,454,786	1,992,699	1,444,560	2,163,557	1,343,106	2,050,206
Australia and New Zealand	521,644	938,114	641,682	997,338	634,992	903,873
West Indies	93,200	240,270	139,662	188,398	146,861	190,582
Channel Islands	345,071	231,555	310,148	232,579	326,097	238,618
Other possessions	288,922	1,090,257	289,772	1,286,461	303,756	1,260,331
Total, British Possessions	3,992,829	5,301,157	4,119,958	5,619,498	3,987,715	5,312,240
TOTAL FOREIGN COUNTRIES AND BRITISH POSSESSIONS.						
Twelve Months ended December, 1886	24,683,229	29,107,640	—	—	—	—
'85	—	—	25,664,460	29,317,731	—	—
'84	—	—	—	—	24,696,685	29,273,662

GOLD AND SILVER BULLION AND SPECIE.—(United Kingdom.) —*Declared Real Value of*, IMPORTED AND EXPORTED *for the* Years 1886-85-84.

[000's omitted.]

Countries.	1886.		1885.		1884.	
	Gold.	*Silver.*	Gold.	*Silver.*	Gold.	*Silver.*
Imported from—	£	£	£	£	£	£
Australia	2,726,	246,	3,737,	169,	709,	23,
S. America, Brazil, Mexico, W. Indies	2,006,	3,471,	2,351,	3,762,	874,	4,408,
United States	3,022,	1,697,	909,	2,751,	5,072,	2,629,
	7,754,	5,414,	6,997,	6,682,	6,655,	7,060,
France	1,350,	1,187,	1,787,	1,725,	1,946,	1,696,
Germany, Holland, Belg., and Sweden	590,	475,	1,302,	526,	1,205,	434,
Portugal, Spain, and Gibraltar	201,	92,	673,	150,	410,	96,
Malta and Egypt	1,237,	38,	202,	11,	66,	86,
China, with Hong Kong and Japan	1,183,	—	1,235,	—	69,	—
West Coast of Africa	137,	83,	232,	99,	117,	69,
All other Countries	940,	183,	946,	185,	252,	160,
Totals Imported	13,392,	7,472,	13,374,	9,378,	10,720,	9,601,
Exported to—						
France	1,181,	1,019,	118,	1,491,	263,	633,
Germany, Holland, Belg. & Sweden	1,653,	46,	3,722,	159,	1,932,	57,
Portugal, Spain, and Gibraltar	2,272,	246,	1,226,	314,	1,573,	467,
	5,106,	1,311,	5,066,	1,964,	3,768,	1,;157,
B. India, China, Hong Kong and Japan	387,	5,614,	424,	7,493,	1,393,	8,338,
United States	2,995,	3,	299,	6,	2,184,	8,
South Africa	145,	—	—	18,	—	—
S. America, Brazil, Mexico, W. Indies	4,551,	28,	1,944,	31,	1,488,	172,
All other Countries	550,	268,	4,198,	340,	3,180,	311,
Totals Exported	13,734,	7,224,	11,931,	9,852,	12,013,	9,986,
Excess of imports	—	248,	1,443,	—	—	—
" exports	342,	—	—	474,	1,293,	385,

BRITISH CORN.—*Gazette Average Prices* (ENGLAND AND WALES), *Weekly for* 1886.

[This Table is communicated by the Commercial Department, Board of Trade.]

Weeks ended on Saturday.	Weekly Average. (Per Imperial Quarter.)						Weeks ended on Saturday.	Weekly Average. (Per Imperial Quarter.)					
	Wheat.		Barley.		Oats.			Wheat.		Barley.		Oats.	
1886.	s.	d.	s.	d.	s.	d.	1886.	s.	d.	s.	d.	s.	d.
Jan. 2	30	3	29	1	18	1	July 3	31	–	24	2	21	4
„ 9	29	10	28	10	18	1	„ 10	30	9	23	5	20	1
„ 16	29	10	28	11	18	5	„ 17	31	–	22	4	20	2
„ 23	29	9	29	7	18	7	„ 24	31	3	23	9	20	7
„ 30	29	7	28	8	18	10	„ 31	32	–	25	10	20	7
Feb. 6	29	9	29	3	18	10	Aug. 7	31	8	22	10	21	2
„ 13	29	6	29	–	19	4	„ 14	32	6	23	10	20	2
„ 20	29	4	28	5	18	10	„ 21	32	7	22	4	21	4
„ 27	29	3	28	3	19	2	„ 28	33	2	24	5	21	2
March 6	29	–	28	1	19	5	Sept. 4	33	1	25	4	19	8
„ 13	29	9	28	6	19	1	„ 11	32	5	29	–	19	–
„ 20	30	1	27	11	19	6	„ 18	31	3	28	1	18	–
„ 27	30	9	27	6	19	5	„ 25	30	9	27	5	18	1
April 3	30	5	27	10	19	4	Oct. 2	30	3	27	4	17	6
„ 10	30	4	27	2	19	6	„ 9	30	–	26	9	17	8
„ 17	30	10	27	7	19	3	„ 16	29	8	27	4	16	9
„ 24	30	11	27	–	19	5	„ 23	29	9	27	4	16	11
							„ 30	30	3	27	7	17	7
May 1	31	1	26	7	19	11							
„ 8	31	5	25	10	20	–	Nov. 6	30	8	28	1	16	11
„ 15	31	11	25	3	20	3	„ 13	31	–	27	8	17	–
„ 22	32	4	25	6	20	10	„ 20	31	4	27	6	17	1
„ 29	32	5	23	6	20	4	„ 27	31	11	27	7	16	7
June 5	32	2	24	5	20	4	Dec. 4	32	7	27	2	17	1
„ 12	31	11	25	2	20	2	„ 11	33	1	27	–	16	9
„ 19	31	4	24	1	21	2	„ 18	33	4	26	7	16	7
„ 26	31	1	24	11	20	10	„ 25	33	11	26	4	16	7

BRITISH CORN.—*Gazette Average Prices* (ENGLAND AND WALES), *Summary of, for* 1886, *with those for* 1885, *added for Comparison.*

[This Table is communicated by the Commercial Department, Board of Trade.]

Average for	Per Imperial Quarter, 1886.						Per Imperial Quarter, 1885.					
	Wheat.		Barley.		Oats.		Wheat.		Barley.		Oats.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
January	29	10	29	–	18	5	33	7	31	11	20	–
February	29	5	28	8	19	–	32	8	31	10	20	8
March	29	10	28	–	19	4	31	10	31	3	20	8
First quarter	29	9	28	7	18	10	32	9	31	8	20	5
April	30	7	27	4	19	4	34	1	31	7	21	4
May	31	10	25	4	20	3	36	8	29	11	22	9
June	31	7	24	7	20	7	33	6	28	6	22	3
Second quarter	31	4	25	9	20	1	34	10	30	–	22	2
July	31	2	23	10	20	6	33	8	28	10	22	2
August	32	5	23	4	20	11	33	5	26	10	22	–
September	31	10	27	5	18	8	31	3	31	1	19	4
Third quarter	31	9	24	10	20	1	32	10	28	9	21	2
October	29	11	27	3	17	3	30	11	30	8	18	10
November	31	2	27	8	16	10	30	11	29	11	18	8
December	33	2	26	9	16	9	30	6	29	6	18	4
Fourth quarter	31	4	27	3	17	–	30	9	30	1	18	7
THE YEAR	31	–	26	7	19	–	32	10	30	1	20	7

REVENUE OF THE UNITED KINGDOM.

Net Produce in QUARTERS *and* YEARS *ended* 31*st* DEC., 1886-85-84-83.

[000's omitted.]

QUARTERS, ended 31st Dec.	1886.	1885.	1886.		Corresponding Quarters.	
			Less.	More.	1884.	1883.
	£	£	£	£	£	£
Customs	5,557,	5,319,	—	238,	5,570,	5,477,
Excise	7,780,	7,845,	65,	—	8,100,	8,300,
Stamps	3,060,	2,800,	—	260,	3,160,	2,930,
Taxes	30,	20,	—	10,	25,	30,
Post Office	2,360,	2,140,	—	220,	1,980,	1,880,
Telegraph Service	445,	410,	—	35,	430,	435,
	19,232,	18,534,	65,	763,	19,265,	19,052,
Property Tax	1,350,	1,200,	—	150,	845,	805,
	20,582,	19,734,	65,	913,	20,110,	19,857,
Crown Lands	130,	130,	—	—	130,	130,
Interest on Advances	301,	583,	282,	—	282,	385,
Miscellaneous	802,	647,	—	155,	596,	1,051,
Totals	21,815,	21,094,	347,	1,068,	21,118,	21,423,
			Net Incr. £721,			

YEARS, ended 31st Dec.	1886.	1885.	1886.		Corresponding Years.	
			Less.	More.	1884.	1883.
	£	£	£	£	£	£
Customs	20,066,	20,139,	73,	—	19,950,	19,810,
Excise	25,280,	25,695,	415,	—	26,527,	27,120,
Stamps	11,800,	11,710,	—	90,	11,700,	11,871,
Taxes	2,920,	2,875,	—	45,	2,860,	2,850,
Post Office	8,500,	8,055,	—	445,	7,850,	7,450,
Telegraph Service	1,780,	1,750,	—	30,	1,745,	1,750,
	70,346,	70,224,	488,	610,	70,632,	70,851,
Property Tax	16,100,	12,635,	—	3,465,	10,318,	12,720,
	86,446,	82,859,	488,	4,075,	80,950,	83,571,
Crown Lands	380,	380,	—	—	380,	380,
Interest on Advances	1,084,	1,302,	218,	—	1,013,	1,210,
Miscellaneous	2,929,	3,037,	108,	—	3,167,	4,875,
Totals	90,839,	87,578,	814,	4,075,	85,510,	90,036,
			Net Incr. £3,261,			

LONDON CLEARING; CIRCULATION, PRIVATE AND PROVINCIAL.

The London Clearing, and the Average Amount of Promissory Notes in Circulation in ENGLAND *and* WALES *on Saturday in each Week during the Year* 1886; *and in* SCOTLAND *and* IRELAND, *at the Dates, as under.*

[0,000's omitted.]

ENGLAND AND WALES.					SCOTLAND.				IRELAND.		
DATES. *Saturday.*	*London:* Cleared in each Week on the preceding *Wednesday.*	Private Banks. (Fixed Issues, 3,40).	Joint Stock Banks. (Fixed Issues, 2,11).	TOTAL. (Fixed Issues, 5,51).	Average for Four Weeks ending	£5 and upwards	Under £5.	TOTAL. (Fixed Issues, 2,68).	£5 and upwards	Under £5.	TOTAL. (Fixed Issues, 6,35).
1886.	£	£	£	£	1886.	£	£	£	£	£	£
Jan. 2......	106,90	1,41	1,40	2,81							
„ 9......	119,79	1,44	1,45	2,89	Jan. 9...	1,84	3,97	5,81	3,38	2,85	6,23
„ 16......	91,31	1,44	1,45	2,89							
„ 23......	126,63	1,41	1,43	2,84							
„ 30......	86,73	1,39	1,41	2,80							
Feb. 6......	130,70	1,38	1,40	2,78	Feb. 6...	1,71	3,66	5,37	3,28	2,72	6,00
„ 13......	89,54	1,35	1,35	2,70							
„ 20......	131,34	1,33	1,34	2,67							
„ 27......	96,60	1,31	1,33	2,64							
Mar. 6......	156,44	1,32	1,27	2,59	Mar. 6...	1,63	3,61	5,24	3,18	2,60	5,78
„ 13......	94,83	1,31	1,33	2,64							
„ 20......	134,10	1,30	1,34	2,64							
„ 27......	97,93	1,32	1,37	2,69							
April 3......	125,22	1,38	1,41	2,79	April 3...	1,60	3,59	5,19	3,23	2,56	5,79
„ 10......	113,88	1,42	1,44	2,86							
„ 17......	91,35	1,43	1,45	2,88							
„ 24......	130,35	1,43	1,46	2,89							
May 1......	65,78	1,43	1,47	2,90	May 1...	1,69	3,73	5,42	3,53	2,64	6,17
„ 8......	125,39	—	—	—							
„ 15......	108,60	—	—	—							
„ 22......	131,12	1,41	1,46	2,87							
„ 29......	86,11	1,39	1,43	2,82							
June 5......	125,44	1,37	1,42	2,79							
„ 12......	90,46	1,35	1,45	2,80	June 12...	2,15	4,15	6,30	3,46	2,58	6,04
„ 19......	113,14	1,34	1,40	2,74							
„ 26......	88,02	1,34	1,35	2,69							
July 3......	134,92	1,43	1,38	2,81							
„ 10......	132,39	1,46	1,38	2,84	July 10...	1,93	3,97	5,90	3,24	2,49	5,73
„ 17......	94,68	—	—	—							
„ 24......	134,22	1,32	1,33	2,65							
„ 31......	81,45	1,34	1,32	2,66							
Aug. 7......	120,86	1,32	1,33	2,65							
„ 14......	100,62	1,33	1,30	2,63	Aug. 14...	1,79	3,93	5,72	3,19	2,45	5,64
„ 21......	132,18	1,27	1,29	2,56							
„ 28......	90,04	1,27	1,28	2,55							
Sept. 4......	131,50	1,26	1,28	2,54							
„ 11......	84,35	1,26	1,28	2,54	Sept. 11...	1,75	3,81	5,56	3,11	2,45	5,56
„ 18......	115,08	1,27	1,28	2,55							
„ 25......	89,10	1,29	1,21	2,50							
Oct. 2......	128,76	1,37	1,37	2,74							
„ 9......	115,55	1,39	1,42	2,81	Oct. 9...	1,75	3,82	5,57	3,14	2,49	5,63
„ 16......	134,52	—	—	—							
„ 23......	102,57	1,42	1,47	2,89							
„ 30......	95,68	1,44	1,42	2,86							
Nov. 6......	146,76	1,41	1,42	2,83							
„ 13......	99,09	1,40	1,42	2,82	Nov. 13...	1,74	3,89	5,63	3,06	2,50	5,56
„ 20......	139,01	1,39	1,42	2,81							
„ 27......	89,45	1,38	1,41	2,79							
Dec. 4......	150,90	1,35	1,38	2,73							
„ 11......	101,84	1,33	1,36	2,69	Dec. 11...	1,91	4,08	5,99	3,74	3,03	6,77
„ 18......	146,99	1,32	1,35	2,67							
„ 25......	116,24	1,33	1,35	2,68							

BANK OF ENGLAND.

Pursuant to the Act 7th and 8th Victoria, cap. 32 (1844)

[0,000's omitted.]

1	2	3	4	5	6	7
Issue Department.					Collateral Columns.	
Liabilities.		Assets.				
Notes Issued.	Dates. (Wednesdays.)	Government Debt.	Other Securities.	Gold Coin and Bullion.	Notes in Hands of Public. (Col. 1 minus col. 16.)	Minimum Rates of Discount at Bank of England.
£ Mlns.	1886.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	Per cnt.
34,82	Jan. 6	11,02	4,73	19,07	24,93	(End of 1885) 4
35,27	„ 13	11,02	4,73	19,52	24,61	1886.
35,59	„ 20	11,02	4,73	19,84	24,30	20 Jan. 3
36,62	„ 27	11,02	4,73	20,87	23,98	
36,80	Feb. 3	11,02	4,73	21,05	24,41	
36,98	„ 10	11,02	4,73	21,23	23,87	
37,32	„ 17	11,02	4,73	21,57	23,60	17 Feb. 2
37,60	„ 24	11,02	4,73	21,85	23,44	
37,20	Mar. 3	11,02	4,73	21,45	24,00	
37,07	„ 10	11,02	4,73	21,32	23,68	
36,83	„ 17	11,02	4,73	21,08	23,62	
36,99	„ 24	11,02	4,73	21,24	23,75	
37,00	„ 31	11,02	4,73	21,25	24,45	
36,41	April 7	11,02	4,73	20,66	24,91	
36,17	„ 14	11,02	4,73	20,42	24,75	
35,96	„ 21	11,02	4,73	20,21	24,78	
35,93	„ 28	11,02	4,73	20,18	24,70	
35,45	May 5	11,02	4,73	19,70	25,05	5 May 3
34,16	„ 12	11,02	4,73	18,41	24,83	
34,33	„ 19	11,02	4,73	18,58	24,58	
34,08	„ 26	11,02	4,73	18,33	24,44	
34,44	June 2	11,02	4,73	18,69	24,90	
34,83	„ 9	11,02	4,73	19,08	24,62	9 June 2½
35,06	„ 16	11,02	4,73	19,31	24,54	
35,63	„ 23	11,02	4,73	19,88	24,39	
35,84	„ 30	11,02	4,73	20,09	25,24	
35,60	July 7	11,02	4,73	19,85	25,34	
35,61	„ 14	11,02	4,73	19,86	25,57	
35,58	„ 21	11,02	4,73	19,83	25,31	
35,98	„ 28	11,02	4,73	20,23	25,39	
36,02	Aug. 4	11,02	4,73	20,27	25,80	
35,94	„ 11	11,02	4,73	20,19	25,43	
36,25	„ 18	11,02	4,73	20,50	25,18	
35,83	„ 25	11,02	4,73	20,08	24,90	25 Aug. 3½
36,01	Sept. 1	11,02	4,73	20,26	25,09	
35,72	„ 8	11,02	4,73	19,97	24,82	
35,95	„ 15	11,02	4,73	20,20	24,53	
35,92	„ 22	11,02	4,73	20,17	24,41	
35,74	„ 29	11,02	4,73	19,99	25,13	
35,05	Oct. 6	11,02	4,73	19,30	25,58	
34,70	„ 13	11,02	4,73	18,95	25,40	
34,52	„ 20	11,02	4,73	18,77	25,11	20 Oct. 4
34,41	„ 27	11,02	4,73	18,73	24,83	
34,30	Nov. 3	11,02	4,73	18,55	25,10	
34,46	„ 10	11,02	4,73	18,71	24,83	
34,59	„ 17	11,02	4,73	18,84	24,57	
34,54	„ 24	11,02	4,73	18,79	24,22	
34,49	Dec. 1	11,02	4,73	18,74	24,39	
34,48	„ 8	11,02	4,73	18,73	24,19	
34,36	„ 15	11,02	4,73	18,61	24,05	15 Dec. 5
33,61	„ 22	11,02	4,73	17,86	24,28	
33,42	„ 29	11,02	4,73	17,67	24,43	

—Weekly Return.

for Wednesday in each Week, during the Year 1886.

[0,000's omitted.]

8	9	10	11	12	13	14	15	16	17	18
BANKING DEPARTMENT.										
Liabilities.					DATES. (Wednesdys.)	Assets.				Totals of Liabilities and Assets.
Capital and Rest.		Deposits.		Seven Day and other Bills.		Securities.		Reserve.		
Capital.	Rest.	Public.	Private.			Government.	Other.	Notes.	Gold and Silver Coin.	
£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	1886.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.
14,55	3,30	5,15	27,88	,14	Jan. 6 ……	17,95	22,30	9,89	,89	51,03
14,55	3,33	4,32	27,34	,17	„ 13 ……	17,25	20,84	10,66	,97	49,72
14,55	3,34	3,65	27,62	,15	„ 20 ……	15,95	20,97	11,29	1,11	49,32
14,55	3,34	4,26	27,02	,15	„ 27 ……	15,05	20,64	12,64	,99	49,32
14,55	3,37	4,03	25,45	,17	Feb. 3 ……	13,75	20,44	12,39	,99	47,57
14,55	3,37	4,66	25,41	,22	„ 10 ……	13,74	20,20	13,11	1,16	48,21
14,55	3,40	6,27	24,19	,25	„ 17 ……	13,74	20,01	13,72	1,18	48,65
14,55	3,40	7,69	23,10	,21	„ 24 ……	13,77	19,95	14,16	1,14	49,02
14,55	3,72	8,26	22,89	,18	Mar. 3 ……	14,32	20,86	13,20	1,22	49,60
14,55	3,73	8,71	22,57	,21	„ 10 ……	14,56	20,57	13,39	1,25	49·77
14,55	3,74	9,74	25,49	,19	„ 17 ……	14,56	24,57	13,21	1,38	53,72
14,55	3,77	10,85	24,29	,17	„ 24 ……	14,56	24,53	13,24	1,30	53,63
14,55	3,75	11,30	23,14	,18	„ 31 ……	14,58	24,59	12,55	1,20	52,92
14,55	3,11	7,62	23,55	,20	April 7 ……	14,58	21,69	11,50	1,27	49,04
14,55	3,11	7,01	22,90	,19	„ 14 ……	14,58	20,46	11,42	1,29	47,75
14,55	3,11	7,22	22,73	,22	„ 21 ……	14,58	20,83	11,18	1,25	47,84
14,55	3,12	7,47	22,44	,14	„ 28 ……	14,58	20,68	11,23	1,23	47,72
14,55	3,12	7,01	22,77	,15	May 5 ……	14,58	21,29	10,40	1,34	47,61
14,55	3,12	5,98	22,68	,20	„ 12 ……	14,83	20,98	9,33	1,39	46,53
14,55	3,13	7,28	22,14	,23	„ 19 ……	14,83	21,42	9,75	1,31	47,31
14,55	3,12	6,56	22,62	,17	„ 26 ……	14,83	21,21	9,64	1,34	47,02
14,55	3,07	6,21	22,56	,17	June 2 ……	14,83	21,12	9,54	1,08	46,57
14,55	3,07	5,84	23,17	,18	„ 9 ……	14,58	20,83	10,21	1,19	46,81
14,55	3,08	6,00	23,21	,19	„ 16 ……	14,58	20,71	10,52	1,23	47,04
14,55	3,08	6,76	23,29	,17	„ 23 ……	14,58	20,82	11,24	1,21	47,85
14,55	3,07	8,33	23,07	,17	„ 30 ……	14,58	22,79	10,60	1,23	49,20
14,55	3,30	4,26	25,12	,20	July 7 ……	15,93	19,95	10,26	1,29	47,43
14,55	3,29	5,98	25,82	,19	„ 14 ……	16,28	22,24	10,04	1,27	49,83
14,55	3,36	4,02	24,95	,20	„ 21 ……	15,55	19,99	10,27	1,27	47,08
14,55	3,37	3,61	24,65	,17	„ 28 ……	14,84	19,57	10,59	1,35	46,35
14,55	3,39	3,34	24,70	,20	Aug. 4 ……	14,84	19,85	10,22	1,27	46,18
14,55	3,40	3,35	24,43	,19	„ 11 ……	14,19	19,98	10,51	1,24	45,92
14,55	3,41	3,73	24,14	,16	„ 18 ……	14,09	19,57	11,07	1,28	46,01
14,55	3,42	3,87	23,94	,17	„ 25 ……	14,09	19,64	10,93	1,29	45,95
14,55	3,72	3,22	24,29	,15	Sept. 1 ……	13,89	19,89	10,92	1,24	45,94
14,55	3,73	2,49	23,24	,19	„ 8 ……	12,74	19,30	10,90	1,26	44,20
14,55	3,73	2,60	23,24	,16	„ 15 ……	12,34	19,33	11,42	1,20	44,29
14,55	3,75	3,18	22,98	,15	„ 22 ……	12,34	19,52	11,51	1,24	44,61
14,55	3,74	3,26	25,41	,15	„ 29 ……	12,34	22,96	10,61	1,21	47,12
14,55	3,08	4,58	27,45	,18	Oct. 6 ……	15,94	23,18	9,47	1,26	49,85
14,55	3,11	3,52	24,66	,18	„ 13 ……	15,94	19,45	9,30	1,33	46,02
14,55	3,11	3,04	23,69	,19	„ 20 ……	14,04	19,77	9,41	1,38	44,60
14,55	3,11	3,00	23,21	,18	„ 27 ……	13,49	19,62	9,58	1,36	44,05
14,55	3,11	3,11	23,72	,18	Nov. 3 ……	14,04	20,19	9,20	1,26	44,69
14,55	3,11	3,14	23,79	,20	„ 10 ……	14,39	19,47	9,63	1,31	44,80
14,55	3,13	3,34	23,08	,18	„ 17 ……	14,04	18,96	10,02	1,28	44,30
14,55	3,43	3,12	22,77	,16	„ 24 ……	13,39	18,71	10,32	1,31	43,73
14,55	3,08	2,93	22,65	,19	Dec. 1 ……	13,14	18,89	10,10	1,26	43,39
14,55	3,08	2,84	22,59	,18	„ 8 ……	12,69	18,90	10,29	1,37	43,25
14,55	3,10	3,09	23,50	,19	„ 15 ……	13,13	19,66	10,31	1,33	44,43
14.55	3,10	3,96	22,31	,17	„ 22 ……	13,13	20,33	9,33	1,30	44,09
14,55	3,14	4,36	24,14	,14	„ 29 ……	13,13	23,07	8,99	1,15	46,34

FOREIGN EXCHANGES.—*Quotations as under,* LONDON *on Paris, Hamburg, and Calcutta;—and New York, Calcutta, and Hong Kong, on* LONDON, *for* **1886.**

1	2	3	4		5	6	7		8		9
			Calcutta.						Price per Ounce.		
DATES. (Thursdays)	London on Paris. 3 m.d.	London on Hamburg 3 m. d.	London on Calcutta.		Indian Council Bills. Minimum Price Per Rupee.	New York on London. 60 d. s.	Hong Kong on London. 4 m. d.		Gold Bars (Fine).		Standard Silver in Bars.
1886.			*s.*	*d.*	*d.*	Per cnt.	*s.*	*d.*	*s.*	*d.*	*d.*
Jan. 7	25·43¾	20·58	1	$5\frac{13}{16}$	$17\frac{31}{32}$	4·86	3	4¼	77	10	46½
„ 21	25·42½	20·56	1	$5\frac{13}{16}$	18	4·86¾	3	4⅛	77	9	46⅞
Feb. 4	25·42½	20·56	1	$5\frac{13}{16}$	17⅞	4·86¾	3	4⅜	77	9	46½
„ 18	25·38¾	20·57	1	5¾	$18\frac{1}{32}$	4·87½	3	4⅛	77	9	46⅞
Mar. 4	25·38¾	20·56	1	5¾	18	4·87½	3	4	77	9	46¾
„ 18	25·37½	20·58	1	$5\frac{15}{16}$	18	4·87¼	3	4	77	9½	$46\frac{13}{16}$
April 1	25·37½	20·57	1	5⅞	18	4·86¼	3	3⅞	77	9	$46\frac{11}{16}$
„ 15	25·37½	20·56	1	$5\frac{13}{16}$	$17\frac{25}{32}$	4·86¾	3	3⅞	77	9	$46\frac{3}{16}$
May 6	25·40	20·59	1	5½	$17\frac{25}{32}$	4·86¾	3	3⅜	77	9½	45⅞
„ 20	25·35	20·54	1	5	$17\frac{17}{32}$	4·86⅞	3	3⅛	77	9	45
June 3	25·38¾	20·55	1	$5\frac{5}{16}$	$17\frac{13}{32}$	4·87½	3	3	77	9	44¾
„ 17	25·40	20·55	1	5¼	17½	4·87	3	3	77	9	44⅞
July 1	25·37½	20·52	1	5⅛	$17\frac{7}{16}$	4·88	3	2¾	77	9	44⅝
„ 15	25·37½	20·48	1	4¾	16⅞	4·86¾	3	1¼	77	9	$43\frac{13}{16}$
Aug. 5	25·37½	20·49	1	4⅜	$16\frac{7}{32}$	4·84	3	–½	77	9	42
„ 19	25·40	20·53	1	$4\frac{3}{16}$	16¼	4·81¾	3	–⅝	77	9	$42\frac{3}{16}$
Sept. 2	25·41¼	20·54	1	$4\frac{3}{16}$	$16\frac{13}{32}$	4·81¼	3	1¼	77	9	41¾
„ 16	25·41¼	20·54	1	4½	17	4·81¾	3	2⅛	77	9	44
Oct. 7	25·45	20·54	1	4⅞	$17\frac{3}{16}$	4·81¼	3	2¾	77	9	$44\frac{11}{16}$
„ 21 ...	25·48¾	20·58	1	5⅛	$17\frac{5}{16}$	4·80¾	3	2¾	77	10	45¼
Nov. 4 ...	25·53¾	20·60	1	5⅜	17⅝	4·80½	3	3⅝	77	9	45⅞
„ 18	25·52½	20·57	1	5¾	$18\frac{1}{16}$	4·81	3	4⅝	77	9	$46\frac{15}{16}$
Dec. 2	25·51¼	20·58	1	5¾	$17\frac{25}{32}$	4·80¾	3	4⅜	77	9	45
„ 16	25·55	20·61	1	5½	$17\frac{25}{32}$	4·80	3	4⅜	77	9	46¼

Vol. L.] [Part II.

JOURNAL

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"Class Mortality Statistics." *By* Noel A. Humphreys, Esq.

[Read before the Royal Statistical Society, 19th April, 1887.
Dr. T. Graham Balfour, F.R.S., in the Chair.]

The marked decline in the English death-rate during the last eleven years, is at once the proof and the result of improvement in the public health due to sanitary labour and progress. This decrease of mortality, if continued, implies a largely increased mean duration of life in England, as well as great reduction in the amount of sickness. Local variations between the death-rates of different towns and of different rural districts still afford a wide field for further sanitary labour, without regard to the marked contrast between all urban and rural rates. The time has come, however, when it is urgently desirable that we should know more of the rates of mortality prevailing in the different strata of society. It is accepted as a fact, and it is apt to be regarded as inevitable, that the death-rates of the poor and of the rich are widely divergent; and Medical Officers of Health are constantly expressing their helplessness in dealing with the excess of mortality in their districts due partly to the poverty and partly to the manner of life of the poorer of the working classes.

The want of trustworthy statistics of class mortality is therefore generally felt by all who are seeking solutions to some of the most deeply interesting social and political problems of the day, as well as by that smaller class called upon to study vital statistics simply from a public health aspect.

In the direction of class mortality statistics, we have life tables founded upon comparatively small bases of facts for the Peerage, for the Clergy, and for the Upper Classes. We have Dr. Farr's Healthy District Life Table; and the Experience Life Tables of the Insurance Offices, based upon the mortality of insured, and therefore selected, male and female lives drawn for the most part from the upper and middle classes. We have also Dr. Farr's and Dr. Ogle's valuable statistics of the mortality of males engaged in different occupations. In many of these instances, however, the Tables relate only to males, and in some only to adult males. There is practically no really trustworthy information of the various rates of mortality in the actual populations of different social classes, including the entire families of men, women, and children.

A near approach to such statistics should be supplied by the Trustees of the Peabody Fund, and by the authorities of various other Associations for the Improvement of the Dwellings of the Working Classes. The value and trustworthiness of the statistics issued by these authorities are, however, to a very great extent destroyed by the practical impossibility of debiting to the population of the improved dwellings their due share of the increasing proportion of deaths of the working classes recorded in workhouses and hospitals.

The influence of age and sex proportions upon the mortality statistics of a population is so great, more especially where the statistics of different social classes, or of persons engaged in different occupations, are under consideration, that the construction of life tables is necessary in order to eliminate these disturbing influences. Deductions from life tables are however always strictly comparable, and it will therefore be necessary briefly to notice a few of the principal life tables, bearing in mind the nature and extent of the facts upon which they are based, before comparing the conclusions to be drawn from them.

Dr. Farr's English Life Tables, technically known as Nos. 1, 2, and 3, from the order in which they were published, may lay claim to be the first national life tables. The first of these tables was published in the Registrar-General's Fifth Annual Report, and was based upon the population enumerated at the Census of 1841, and the registered deaths in the same year. The second table was published in the Registrar-General's Twelfth Annual Report, and was constructed from the Census enumerations in 1831 and 1841, and from the registered deaths in the seven years 1838-44. The Life Table No. 3 was based upon the Census enumerations in 1841 and 1851, and upon the six millions and a-half of deaths registered in the seventeen years 1838-54. This English Life Table was constructed on a larger basis of facts than any other existing life table, and its trustworthiness as an exponent of the true mortality and duration of life of the entire English nation during that period of seventeen years cannot be called into question.

The results of the English Life Tables Nos. 1 and 2 approximate very closely, a natural result of the fact that the death-rate in 1841 differed but slightly from the mean rate in the seven years 1838-44. Thus according to No. 1 Table the mean duration of life of males was 40·7 years, and by No. 2 Table 40·4 years. The mean annual rate of mortality in the seventeen years 1838-54, which supplied the basis for Table No. 3, was higher than that in 1841, or in the seven years 1838-44, consequently this table gives a lower mean duration of life of males, or 39·9 years.

Since the period of seventeen years ending with 1854, which served as the basis for Dr. Farr's Life Table No. 3, mortality in England has declined. More especially has the decline of mortality been marked since 1875, when the Public Health Acts of 1872 and 1875 came into full operation. The mean annual death-rate in England and Wales remained practically stationary during the thirty-eight years 1838-75 at 22·3 per 1,000, but declined to 20·8 in the five years 1876-80, and further to 19·3 in the next five years 1881-85. Thus the mean death-rate in the ten years 1876-86 averaged 20·1 per 1,000, against 22·3 in the preceding thirty-eight years. It is obvious that this reduced mortality implies a marked increase of longevity, or of the mean duration of life. An outline life table, constructed by me in 1883 from the mortality of the five years 1876-80, showed, as compared with the deductions from Dr. Farr's Table No. 3, an increase of two years in the mean duration of life of males, and of three and a-half years in that of females; this table giving a mean duration of 41·9 years for males, and 45·3 years for females. It is evident moreover that a Life Table, constructed upon the experience of the ten years 1876-85, would show a still further increase in the mean duration of life. It should be borne in mind that all the life tables above referred to are based upon the mortality statistics of the entire nation, of all classes, and living partly in town and partly in country districts.

It is not necessary to pause here to discuss the varying chances of life and death in town and country, but it may be pointed out that Dr. Farr stated, more than forty years ago, in the Registrar-General's Fifth Annual Report, that the mean duration of life, calculated by the scientific life table method, was, in the extra-metropolitan portion of Surrey, 45 years, while in Liverpool it was not more than 26 years.

No trustworthy life table can be constructed without an accurate knowledge of the living population, and of its sex and age constitution, as well as of the deaths occurring therein. Hence the difficulty in the way of constructing life tables for the various social classes. But of this presently.

In the "Transactions of the Royal Society," for 1859, may be found a valuable paper by the late Dr. Farr, "on the construction "of Life Tables illustrated by a new Life Table of the Healthy "Districts of England." The Healthy District Life Table was constructed from the observation of about five million years of life, upon the basis of the Census enumeration of 1851, and of the mortality recorded during the five years 1849-53 in 63 registration districts of England and Wales, in which the mean annual death-rate during the ten years 1841-50 did not exceed 17 per 1,000 persons living. This life table gives, therefore, the results of the mortality experienced by all classes of the population living under favourable circumstances in the healthiest rural districts. Dr. Farr's main object in constructing this table was, "to obtain a "standard by which the loss of life under other circumstances "may be measured;" and Dr. Farr added with reference to this table, that "it has been found by experience that this Healthy "District Life Table expresses very accurately the actual duration "of life among the clergy and other classes of the community "living under favourable circumstances." Subsequent experience has further proved the general accuracy of this assertion, so far as it relates to the mortality and expectation of life of adults; but as we shall presently see, and as might reasonably be expected, the mortality of children, under 5 years of age, of the middle and upper classes, living indifferently in town and country, is very considerably below the rate that prevails among those of all classes of the population (including probably more actual paupers than members of the middle and upper classes) even in the healthiest districts. Consequently, the mean duration of life among the middle and upper classes is considerably higher than that among all classes living in the healthiest districts.

When Dr. Farr constructed his Healthy District Life Table he suggested, as we have seen, that the table might be used as a measure of the mortality in the well-to-do classes, and he made this suggestion because at that time no satisfactory class life tables existed. Fifteen years later Mr. Charles Ansell, the Actuary of the National Life Assurance Society, published his "Vital Statistics of Families in the Upper and Professional "Classes," which is one of the most valuable contributions yet made to the subject of Class Mortality. The National Life Society were desirous to construct a system of educational and other endowments for children, but were met by the difficulty that no sufficiently trustworthy data existed for ascertaining the rates of mortality prevailing at different ages among children of the upper and professional classes for the construction of tables of premiums. In order to obtain the necessary data, lithographed letters were addressed to members of the clerical, medical, and legal professions, stating the object of inquiry, and enclosing forms which the persons addressed were requested to fill up and return. The result of this inquiry was to supply the necessary particulars relating to nearly 50,000 lives of the upper classes, available for the construction of a life table. The basis of observation, when compared with that which supplied the facts for

Dr. Farr's national tables, is undoubtedly small, but it is at the same time larger, as Mr. Ansell points out, than the basis of facts from which was constructed any one of the three following standard life tables, which have probably been more extensively used for Life Assurance purposes than any others, namely the Northampton, Carlisle, and Equitable Experience.

Mr. Ansell's Tables have been placed first among statistics of class mortality on account of the larger basis of facts from which they were constructed, but reference should also be made to two other class tables, which may claim priority on account of their date of publication, dealing with the vital statistics of the Peerage and of the Clergy. Both these tables were, however, constructed on far smaller bases of facts than Mr. Ansell's Upper Class Tables.

In 1861 Mr. A. H. Bailey, Actuary of the London Assurance Corporation, and Mr. A. Day, of the Scottish Widows' Fund Assurance Society, published the "Peerage Families' Experience "Tables," based upon the records of the Peerages concerning British peers, their children, and the children of their eldest sons, between the years 1800 and 1855. This table dealt in all with 7,473 lives. A few years later, in 1864, the Rev. John Hodgson published, as the result of many years of laborious investigation, his "Observations on Duration of Life among the Clergy of Eng-"land and Wales," with some supplemental tables based upon the observations and constructed by Mr. Samuel Brown, the well known Actuary of the Guardian Life Assurance Society. The observations and tables were based upon the observed vital statistics of rather more than 5,000 clergymen who had lived between 1760 and 1860; the observed facts embraced 3,122 deaths occurring in 106,845 years of life under observation. With regard to these tables, it may be noted that the rate of mortality among the clergy during the last half of the last century showed an excess at each quinquennial group of ages, compared with the rates that prevailed in the first half of this century. Further, it is interesting to note that the mortality under 50 years of age among all the clergy in Mr. Hodgson's tables was considerably lower than that shown by Dr. Farr's Healthy District Life Table, whereas above 50 years of age the comparison is in favour of the general population living in the healthy districts in the five years 1849-53.

Supplementing these tables giving the vital statistics of the Clergy, some other tables were simultaneously published by Mr. Hodgson based upon the experience of 1,792 children of Clergymen, representing 25,612 years of life, lived between birth and 25 years of age, of which 6,426 were lived under 5 years of age. Examination of the rates of mortalit deduced from these tables of children of the Clergy, suggests, however, that the basis of facts was too small to yield entirely trustworthy results.

Before comparing the results derived from these different tables dealing with the mortality of the middle or upper classes, reference should be made to the Experience Tables of the Life Assurance Offices, collected by the Institute of Actuaries. No less than twenty of the older and principal Assurance Societies, Scotch and English, contributed their experience to the formation of these tables, which are based upon 160,426 lives, and more than a million and a half years of life under observation. These tables are usually known as the Healthy Male and Healthy Female Experience Tables, since they deal exclusively with insured, and, therefore, specially selected healthy lives. They are not strictly speaking class tables, but they, in fact, represent the observed mortality among insured lives belonging almost exclusively to the middle and upper classes. It should be stated, moreover, that the basis of observed facts for the Healthy Males Table was nearly ten times as large as that for the Healthy Females Table; and further that neither of the tables commences before 10 years of age, from the fact that very few lives of children were insured in the offices which contributed their experience.

The Experience Tables of thirty American life assurance societies also afford valuable information relating to the mortality among insured lives in America; and supplying as they do the means for comparing the vital statistics of similar classes in England and America, which do not otherwise exist, present many points of interest which can only be touched upon here. These American Experience Tables dealt with 549,418 policies existing at the end of 1874, as well as with 43,568 previously discontinued and 46,543 previously closed by death; in all with 639,529 policies, covering four millions and a half years of life under observation. At 20 years of age, according to these tables, the expectation of male life is one year greater in America than in England; and this excess of American expectation is observed at subsequent ages, but steadily declines, until at the age 84 the English expectation slightly exceeds the American expectation. Female expectation at age 20 is identically the same by the English and American Experience Tables, but after this age, until the age 47, American expectation exceeds the English expectation. After age 47, however, female expectation by the American Table falls below that shown by the English Table, and so continues to the end of life. It is further noteworthy that, according to the American Experience Tables, expectation of life is lower for females than for males after the age 53, when it is identical with that of males. It is scarcely necessary to say that by all the principal English Tables expectation of life among females exceeds that among males after the age of 35 years, and shows an increasing excess to the end of life.

It will be desirable now briefly to compare the results given by the above mentioned life tables, which may be divided into two classes, those that are based upon the statistics of the general population, and those that deal with selected classes of the population.

In comparing the results of different life tables, one of the most important points admitting of easy comparison is the Mean Duration of Life or the Expectation of Life at Birth. It may in the first place be stated that by the old Northampton and Carlisle Tables the expectation of life of persons (males and females) is 25·2[1] and 38·7 years respectively.

Dr. Farr's Life Tables Nos. 1, 2, and 3, to which reference has previously been made, did not show material variations, and it will suffice for present purposes to note that the expectation of persons (males and females) was 40·9 years, that of males being 39·9 years, and of females 41·9 years. By the life table which I constructed and made the subject of a paper I read before this Society in 1883, and which was based upon the mortality statistics of the five years 1876-80, I found that the expectation of life at birth of persons (males and females) had risen to 43·6 years, and that of males and of females to 41·9 and 45·3 years respectively. By Dr. Farr's Healthy District Life Table, the Mean Duration of Life was for persons 49·0 years, for males 48·6 years, and for females 49·5 years. Thus the mean duration of life by the Healthy District Table is very nearly double what is inaccurately shown by the old Northampton Table, exceeds that given by Dr. Farr's English Life Table (No. 3) by more than eight years, and is 5·4 years greater than by the more recent table based upon the reduced mortality in the five years 1876-80. The Peerage Tables show a mean duration of life for persons of both sexes of 52·6 years: 52·0 for males, and 53·7 for females. Ansell's Table for the Upper Classes gives a mean duration of life of 53·1 years, almost identical with that shown by the Peerage Tables, but more than four years greater than that by Dr. Farr's Healthy District Table, a difference which, as we shall presently see, is mainly due to the remarkably low death-rate among children of the Peerage and of the Upper Classes aged under 5 years. The expectation of life, however, by the Upper Class Table, from the tenth year of age to the end of life is constantly greater than by the Healthy District Table. The death-rate of children during the first ten years of life is so high that by nearly all life tables (see Table I) the expectation of life is greater for children aged 10 years than it is at birth. For example, by the Carlisle Table it is 38·7 years at birth and 48·8 at age 10;[2] by the English Life (No. 3) it is 40·9 at birth and 47·4 at age 10; and even by Healthy District it is 49·0 at birth and 51·1 at age 10. The Peerage and Upper Class Tables, however, form exceptions to this rule. The English and American Experience Tables (see Table I) for obvious reasons do not commence before age 10, and it may be mentioned that expectation at that and subsequent ages, by both these tables, although based upon the mortality of insured, and therefore more or less selected lives (both as to health and class), is lower than that shown either by the Healthy District, the Peerage or the Upper Class Tables. In Table I the expectation of life is given at age 30, and at the commencement of each subsequent decennial age-period, according to nine different tables, and it will be found that if we exclude the Northampton Table as incorrect, the range of expectation by the various tables is far smaller at different periods of adult life than it is at birth. This is naturally due to the fact that the widest variations of the death-rates by the different tables occur in childhood. For example, the expectation of life at age 30 varies from 33·3 years by the English Life Table (No. 3) to 36·9 by Hodgson's Clergy Table, and 37·9 by Ansell's Upper Class Table; at age 60 the expectation ranges from 13·9 by the English Table (No. 3) to 15·2 by the Peerage, 15·4 by the Healthy District, and 16·4 by the Upper Class Tables.

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[1] The Northampton Tables were incorrectly based upon deaths alone, without reference to the numbers and ages of the living population out of which the deaths occurred, and thus gave, as was pointed out by Dr. Farr, an inaccurate and too low a figure for the expectation of life at birth.

In order to throw light upon the cause of the above mentioned variations in the expectation of life at different ages, by various tables, it is necessary briefly to call attention to Table II, which gives the mean annual death-rates at five age-periods by six Life Tables.

It is shown in this table that the annual death-rate of children under five years of age ranges from 65·7 per 1,000 by the English Table (No. 3), to 39·4 by the Healthy District Table, and 28·2 by the Upper Class Table; by the Peerage Table it is only 20·7. At the next age-period, 5—20 years, the range of rates is almost as great; the highest rate at these ages is 7·1 per 1,000 by the English Table (No. 3), and the lowest is 4·8 by the more recent English Table (1876-80). The low rate at this group of ages by this recent English Table is one of the most noteworthy features of the recent changes in the English death-rate. It is certainly surprising to find the English rate at these ages, by this recent table, below that shown either by the Healthy District or the Upper Class Tables. Between the ages 20 and 40 the rate by the English Table (No. 3) is 10·3 per 1,000, and only ranges in the other tables from 8·6 by the English Table (1876-80) to 8·0 by the Healthy Insured Lives Table. At the ages 40—60, the rates range from 18·3 by the English Table (1876-80), to 11·7 by Hodgson's Clergy Experience; and at the last age-period, 60 years and upwards, the range is from 72·3 per 1,000, by the English Table (1876-80), to 60·9 by Ansell's Upper Class Table.

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[2] The incorrect Northampton Table gives 25·2 as the expectation of life at birth, and 39·8 as the expectation at age 10.

The foregoing comparison throws some light upon the differences between the mortality statistics of the general population and those of the middle and upper classes. It is obvious however that the contrast would be more strongly marked if we had similar life tables for the working classes with which to compare the statistics of the middle and upper classes. Unfortunately however no such tables exist.

As affording some indication of the mortality statistics of the working classes, there now remain to be considered the statistics of mortality among males engaged in various occupations which have appeared in the Decennial Supplements to the Registrar-General's Annual Reports. The late Dr. Farr constructed and published in the Decennial Supplements relating to the years 1851-60 and 1861-70 practically the first occupational mortality statistics of any real value. They were based upon the numbers of males, aged between 25 and 65 years, enumerated at the censuses as engaged in the several principal occupations, and upon the deaths of persons said to have followed such occupations, and recorded in the death register in the years 1860, 1861, and 1871. Dr. Ogle, in the Decennial Supplement for 1871-80, followed in the footsteps of Dr. Farr, but carried his investigations considerably further than his predecessor had done. These more recent statistics give the mortality of males aged 25—65 years, engaged in 100 different occupations, or groups of occupations, during the three years 1880-82; they are not only based upon a larger number of facts than those previously published, but the rates of mortality are corrected for the varying ages of those engaged in different occupations; they moreover deal with the causes of death which make up the death-rates of males in different occupations, a branch of the subject which had not previously been investigated. The subject now under discussion is rather class than occupational statistics, but even from this point of view Dr. Ogle's figures have considerable value. Taking the mortality of all males aged 25—65 years, in England and Wales, during the three years 1880-82 to be equal to 1,000, Dr. Ogle gives what he calls the

Comparative Mortality Figure for males at the same ages engaged in each of 100 occupations or groups of occupations in his selected list. The lowest mortality figures for these occupations are 556 for "Clergyman, Priest, Minister," 599 for "Gardener, Nurseryman," 631 for "Farmer, Grazier," 701 for "Labourer in Agricultural Counties," 719 for "Schoolmaster, Teacher," and 842 for "Barrister, Solicitor." At the other end of the list appear the following mortality figures: "Cab, Omnibus Service," 1,482; "Innkeeper, Publican, Spirit, Wine, Beer Dealer," 1,521; "File Maker," 1,667; "Earthenware manufacturer," 1,742; "Miner (Cornwall)," 1,839; "Costermonger, Hawker, Street Seller," 1,879; "General Labourer (London)," 2,090; and "Inn, Hotel Servant," 2,205. The contrast between the Mortality Figure for "Hotel Servant" and that for "Clergyman, Priest, Minister," which heads the list, is indeed startling. It is evident however that this wide range of differences is due in far greater measure to occupational, than to what may be called social or class influences. The high rates of mortality that prevail among cab and omnibus men, file makers, earthenware manufacturers, Cornish miners, and among those engaged in the liquor traffic, are obviously due to the purely occupational risks, or to temptations incidental to their callings, rather than to the class hardships arising from poverty and its attendant penalties of bad housing, bad feeding, and bad clothing. The high mortality figure for general labourers in London, however, may to a great extent represent the effects of poverty, combined with bad housing and other attendant evils, rather than those of unhealthy occupation. The wide difference between the mortality figures for the clerical and medical professions is full of interest as a health problem, but it evidently cannot be attributed to what has been called the influence of class, apart from the influence of occupation and its consequences. The high and increasing mortality among medical practitioners was the subject of a valuable and interesting paper by Dr. Ogle, which was recently read before the Royal Medical and Chirurgical Society of London. The materials which Dr. Ogle had at his disposal, however, were not suitable for the construction of a Life Table for the Medical Profession similar to Mr. Hodgson's Life Table for the Clergy, to which reference has been made. The paper, therefore, does not afford the means for calculating the mean duration of life in that profession, although the rates of mortality prevailing among its members between the ages of 20 and 65 are startlingly high compared with those prevailing among the clerical profession. The Comparative Mortality Figure, which as above stated, does not exceed 556 for "Clergyman, Priest, Minister," is equal to 1,122 for "Physician, Surgeon, General Practitioner." This striking contrast between the mortality of the clerical and medical professions, as well as between that of labourers in agricultural counties and in London, point to controlling health influences apart from those due to class, or to mere occupation. Valuable as are the Registrar-General's statistics of Occupational Mortality for throwing light upon the excessive death-rates of adult males engaged in different occupations, they do not afford much help in the direction of class mortality statistics. As the most important differences between the mortality statistics of the upper classes and of the general population occur in infancy and childhood, it is absolutely necessary to obtain information of the mortality in childhood among the working classes. With this object in view the statistics of class mortality which have been published by Dr. Grimshaw, the Registrar-General of Ireland, crude as they are in their present form of publication, have much real value, and deserve the careful consideration of all interested in this important subject.

It is to be regretted that the census reports do not afford the means for classifying, at any rate in large groups, the entire population according to social position, which is a necessary preliminary to the construction of class mortality statistics on an adequately large basis of facts. It is true that the numbers of males and of females engaged in various occupations, at different groups of ages, are shown in the census reports, but unoccupied men, women, and children, are lumped together without distinction of classes. The result of this system is that it is impossible to ascertain the numbers of persons (men, women, and children) depending upon the several branches of industry, or belonging to the various social classes. It follows, therefore, that it is also impossible to calculate the varying rates of mortality at different ages, and from different causes, in different grades of society.

Dr. Grimshaw has, however, boldly faced these difficulties, and has attempted, with a success which if not complete is at least encouraging, to supply the means for determining the mortality statistics of the different classes of the population of the city of Dublin, which had in 1881 an enumerated population of 346,693 persons. From a statistical point of view this population is open to objection as too small for the class sub-division necessary to obtain the desired results. If, however, this statistical information be taken for the three years 1883-85, the basis of observation exceeds a million years of life, which adds very considerably to the value and trustworthiness of deductions that may be drawn from Dr. Grimshaw's figures.

It should here be stated that while the facts given in these tables possess value and interest beyond question, the calculated rates of mortality that accompany them are to a considerable extent misleading because no attempt has been made to take into account the widely different age constitution of the population in the various classes, which as will presently appear, destroys the value of their uncorrected death-rates for the purposes of comparison.

It will be necessary in the first place briefly to consider the constitution of the four classes into which Dr. Grimshaw divides his Dublin population. The *first*, or professional and independent class, includes :—the clerical, medical, legal, and other professions; naval and military officers, and heads of public departments; merchants and manufacturers of the higher class; and persons of rank or property not otherwise described. The *second*, or middle class, includes :—the general body of officials engaged in the civil service, in banking, &c.; traders (except petty shopkeepers), business managers, &c.; clerks and commercial assistants; and a miscellaneous division, including all householders in second class localities not included in the preceding division. The *third*, or artisan and petty shopkeeper class, includes :—working engineers, engravers, printers, watchmakers and jewellers, building and furnishing trades, clothing trades, food supply trades; other trades and callings ranking with trades and petty shopkeepers. The *fourth*, or general service class, includes :—the army, police, postal delivery, and prison services, domestic servants, coach and cab drivers, vanmen, &c., hawkers, porters, labourers, &c., and finally all workhouse inmates, who although given separately, are for calculation purposes included in this general service class.

It is beside the scope of the present paper to discuss the details of this classification, adopted for Dr. Grimshaw's experiment in the direction of class mortality statistics. If, however, this experiment is to be followed by others in the same direction, as it may be hoped will be the case, the question of classification should not only be very fully considered, but a more detailed explanation of the adopted system should accompany any tables of class mortality statistics, in order that their value for comparative purposes may be determinable. The rank or occupation of the population in the Census returns, as well as in the Death Register, are in so large a proportion of cases vague and indefinite, that great difficulties stand in the way of constructing trustworthy occupational or class mortality statistics. If due care, however, be used to secure an identical system of classification for the census living population and for the deceased population recorded in the Death Register; and if the system aim at defining a few well marked groups of classes or occupations, avoiding too much detailed sub-division, there seems no good reason for doubting that useful statistics may be compiled, from which valuable conclusions may be deduced. A detailed consideration of deductions from Dr. Grimshaw's figures will point to a few anomalies, probably arising from want of uniformity between the classification of the living and deceased populations, but many of the deductions suggest undoubtable and striking facts, which add materially to our knowledge of how people live and die in the various strata of society. It may here be noted, although it will be necessary to refer to the subject, that deaths in workhouses constitute a serious practical difficulty in the construction of class mortality statistics. During the three years 1883-85 no fewer than 4,919 deaths were recorded in the Dublin workhouses, equal to 16·4 per cent. of the total deaths in the city. The proportion of workhouse deaths in London during the same three years did not exceed 12·4 per cent. Dr. Grimshaw has debited all these deaths in the Dublin workhouses to the General Service Class, which probably unduly raises the death-rate of this class. Bearing in mind the extent to which the workhouse infirmaries stand in the relation of hospitals to the poorer classes, it is impossible to doubt that their inmates include considerable proportions of the Artisan and Mechanic Class, and no inconsiderable numbers of clerks, shop-assistants, and petty shopkeepers. It is impossible, therefore, correctly to assume that all the deceased workhouse inmates belong to what Dr. Grimshaw calls the General Service Class. There are constant social changes of class in operation, and in the constant struggle to climb the social ladder there is a constant succession of failures who, outpaced in the struggle, have a tendency to drift backwards and downwards. Therefore, unless great care and precision be exercised in the description of the previous rank or occupation of persons dying in workhouses, these deaths will constantly be a source of doubt and difficulty, in the construction of class mortality statistics. As we shall presently see, however, this element of uncertainty if borne in mind does not materially affect the value of a large proportion of Dr. Grimshaw's figures.

It is necessary briefly to refer to the varying-age constitution of these different social groups of the Dublin population (see Table III), as it is absolutely necessary to correct the recorded death-rates in these groups for this disturbing influence, before the death-rates at all ages in the different classes can be compared with any useful result. In a thousand of the population of the professional and independent class only 75 are children under 5 years, whereas in the Artisan Class the number is 121. The number of persons aged upwards of 60 years in a thousand of the Professional and Independent Class, on the other hand, is 158, while only 63 in the same number of the Artisan Class belong to this group of ages. Probably a considerable proportion of the Artisan

Class aged over 60 years would be found in the workhouses. It is hardly necessary to point out that the recorded gross death-rate in the several social groups is largely affected by these variations of age-distribution, quite independently of the influence of sanitary condition, in the largest sense of that term. If we assume hypothetically that the English Life Table death-rates prevailed respectively at each of five age-periods, in each of the four social groups of the Dublin population, the death-rate at all ages (see Table IV) would be 19·5 in the Middle Class, 21·3 in the General Service Class, 21·4 in the Artisan Class, and 25·2 in the Professional and Independent Class. The proportion of elderly persons among the Professional and Independent Class is so abnormally large as to more than compensate, as regards its effect upon the death-rate of the Class, for the small proportion of children under 5 years of age, and thus to account for an excess of mortality equal to 5·7 per 1,000, compared with the rate that would occur among Dr. Grimshaw's Middle Class. Turning from these hypothetical rates, useful only for showing what correction is necessary for the influence of the varying-age constitution of the population of the different social groups, to the recorded annual death-rates at all ages in these groups in Dublin, during the three years 1883-85, we find that they were, disregarding decimals, 16 per 1,000 in the Professional and Independent Class, 23 in the Artisan Class, 26 in the Middle Class, and 35 in the General Service Class. It has been shown that, excluding all other varying conditions, the differences of age-constitution would cause large differences in these recorded rates, which are, therefore, not comparable until corrected for this disturbing influence (see Table IV). If 1,000 be taken to represent the mortality that would prevail in each of these social groups, if the death-rate in each age-period corresponded with that shown by Dr. Farr's English Life Table, the recorded rate in Dublin in the three years 1883-85 (corrected for age-distribution), was equal to 632 in the Professional and Independent Class, to 1,093 among the Artisan Class, to 1,333 among the Middle Class, and to 1,659 among the General Service Class, which includes all workhouse inmates. These figures may, assuming the correctness of Dr. Grimshaw's classification of his facts, be taken as fairly representing the differences between the mortality of the several social groups, due to variations of sanitary condition in the largest sense of that term, including the effects of housing, clothing, feeding, occupation, and physical and mental wear and tear. Thus after full allowance for the effect of age-constitution of the population, it appears that the recorded mortality in the several classes presents wide and striking differences. As bearing to some extent upon the trustworthiness of the statistics of these several groups of classes, it should be pointed out that the years of life under observation (in thousands) was 91 in the Professional and Independent Class, 172 in the Middle Class, 322 in the Artisan Class. and 467 in the General Service Class. Naturally the basis of observed facts is very much smaller in the Professional and Independent than in any other class, but as a probable set off to this defect it may be submitted that the rank and occupation in this class are, as a rule, better defined and not subject to the same difficulty in the way of classification as arises from the confusion between master and journeyman in the classification of many trades and occupations. It appears, therefore, that while admitting the desirability of further experiment in the direction of these Dublin figures, on a more extended scale, there is no reason to reject these figures on the ground of insufficiency of facts for the calculation of generally speaking trustworthy rates of mortality. The most serious grounds for objection to Dr. Grimshaw's figures arise from the very suspiciously remarkable death-rates yielded by his so-called Middle Class, which over 20 years of age are considerably higher at each age-period than are those in the Artisan Class; indeed among persons aged upwards of 60 years the rate is 154 per 1,000 in the Middle Class, against 61 in the Artisan Class, and 110 in the General Service Class, including all the Workhouse deaths. If the Artisan and General Service Classes (including Workhouse deaths) be thrown together, the death-rate among those aged upwards of 60 years of what may fairly be called the Working Classes, does not exceed 92 per 1,000, against 154 among the Middle Class, which is only credited with eight thousand years of life at these ages, against fifty-five thousand among the Working Classes. There is evidently some serious error of classification either of the living or the dying in Dr. Grimshaw's Middle Class. In further proof that the figures in this class at adult ages are not trustworthy, it will only be necessary to refer to one or two figures from Table VI, in which has been calculated the death-rate in each age-period, for each of the four sub-divisions of Dr. Grimshaw's Middle Class. Reference here will, however, be confined to the age-periods of persons above 60 years, among whom the death-rate in the Middle Class appears to be 155 per 1,000.[3] The first of the four sub-divisions includes the "General Body of "Officials, Civil Service, Banking, &c.," and shows a mortality 106 per 1,000 among those aged over 60 years; in the second sub-division of "Traders (except Petty Shopkeepers), Business

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[3] For explanation of the difference in the death-rate of the Middle Class over 60 years of age, here given as 155 per 1,000 instead of 154 as above, see note to Table VI.

"Managers, &c.," the rate is 118; in the third sub-division of "Clerks and Commercial Assistants," the rate does not exceed 90; while in the fourth sub-division called "Miscellaneous" the rate at all ages is 42, and among those aged upwards of 60 years no less than 303 per 1,000. It is impossible to doubt that these figures imply some error in the classification either of the living or of the dying in this Middle Class. Such error does not materially affect the value of general deductions from Dr. Grimshaw's figures, but serves the useful purpose of pointing out some of the difficulties in the way of thoroughly trustworthy class mortality statistics, and the absolute necessity for the greatest caution in their construction.

But to return to a consideration of Dr. Grimshaw's figures. One of their most interesting features is the light they throw upon the varying rates of child mortality in the various social classes. The annual mortality among children under 5 years of age was equal to 22 per 1,000 among the Professional and Independent Class, whereas it was 59 in the Middle Class, 71 in the Artisan Class, and 110 in the General Service Class. Thus the death-rate of children born in the Professional and Independent Class is only a fifth of the rate among children born in the General Service Class. Nor do we find that this wholesale slaughter of the sickly and weakly children of the working classes under 5 years of age increases the vitality of the survivors in the next age-period (5—20 years), a favourite theory with a large proportion of vital statisticians. Children of these ages among the Professional and Independent Class died at the rate of a little more than 3 per 1,000; while in the three other classes, in the order before referred to, the mortality was respectively 8, 9, and 11 per 1,000. Thus in this age-period the proportional excess of mortality in the three classes below the Professional and Independent is nearly as great as in the first five years of life. In the period between 20 and 40 years the annual mortality among the Professional and Independent Class was 7 per 1,000, against 14 in all the other classes in the aggregate, including the inmates of workhouses. Between 40 and 60 years the Professional and Independent Class died at the rate of 13 per 1,000, whereas among all the lower classes in the aggregate the rate was 31, or considerably more than twice as high. The variations in the rates over 60 years of age have before been compared. Thus while by far the largest proportional excess of mortality in the working classes occurs among children, the death-rates in each of the three periods of adult life used for the purposes of comparison (20—40, 40—60, and 60 and upwards) are, in Dublin, according to Dr. Grimshaw's figures, more than twice as high in the General Service Class as in the Professional and Independent Class.

In drawing inferences from these figures, it should be remembered that the mean annual death-rate in Dublin during the three years 1883-85 among all classes was so high as 28·8; that the excess of mortality due to defective sanitary condition was therefore very great, and that the incidence of the greater part of this excess upon the lower or working classes was a natural consequence of this defective sanitary condition. The problem which now awaits solution, the solution of which would possess much value from political, social, and sanitary points of view, is whether in populations living under more favourable sanitary conditions, such as in most of the large English towns, the rates of mortality in the several social classes present relatively such wide contrasts as Dr. Grimshaw has proved to prevail in Dublin. The experience of such English class mortality statistics as are available point to sufficiently wide contrasts between the rates of mortality among the Professional and Independent and the Working Classes, to supply material for the gravest consideration of politicians as well as sanitary reformers.

It is now desirable to consider another branch of the subject, for which Dr. Grimshaw's figures supply much valuable material—the varying incidence of different forms of disease upon the several social classes. The list of diseases relating to which Dr. Grimshaw gives us statistics (see Table VII) is not an extensive one; it includes the principal zymotic diseases, phthisis, diseases of the respiratory system, convulsions, and violence. During the three years under notice the mean annual rate of mortality from the principal zymotic diseases in Dublin was equal to 3·2 per 1,000 in the entire population of the city. Inasmuch, however, as the mortality from the majority of these zymotic diseases mainly affects children, and as we have seen that the proportion of children varies very considerably in the different social classes, it becomes necessary to take account of this disturbing influence before any really useful comparison can be made between the death-rates from these diseases in the several classes. It may be stated, however, that the uncorrected death-rates from these principal zymotic diseases in the several social classes were respectively 1·20 in the Professional Class, 2·99 in the Middle Class, 3·04 in the Artisan Class, and 3·81 in the General Service Class.

During the three years 1883-85 only 2 deaths from small pox were registered in Dublin. To measles, however, 346 deaths were referred, equal to an annual rate of 0·33 per 1,000 of all ages. If for the purpose of making the above-mentioned necessary correction for the varying proportions of children in the several classes, we calculate the death-rate from measles to 1,000 children under 5 years of age, we find (see Table VIII) the 346 deaths from measles equal to 3·04 per 1,000 in the general population; calculated in the same way, the death-rate from measles was 0·44 in the Professional Class, 1·76 in the Middle Class, 2·50 in the Artisan Class, and 4·33 in the General Service Class. Thus, after correction for difference of age-distribution, the mortality from measles in the General Service Class was nearly ten times that which prevailed in the Professional Class; whereas the uncorrected rates in Table VII do not show anything like so wide a range.

The death-rate from scarlet fever among persons of all classes was equal to 6·38 per 1,000 persons aged under 5 years; in the several classes it ranged from 3·22 in the Professional Class to 7·91 in the General Service Class, showing a much smaller range of mortality than in the case of measles.

Whooping cough mortality among persons of all classes was 5·77 per 1,000 under 5 years of age, and ranged from 1·32 in the Professional Class to 7·07 in the General Service Class, the latter rate being more than five times the Professional rate.

The deaths attributed to diarrhœa give an annual rate of 6·79 per 1,000 persons of all classes under 5 years of age; the rate was 3·22 in the Professional Class, 7·08 in the Middle Class, 4·77 in the Artisan Class, and 8·79 in the General Service Class. Thus the class differences in the mortality from diarrhœa are not so wide as might be expected, and it is difficult (without some other explanation) to account for the rate being so much higher in the Middle than in the Artisan Class. The years of life in these two classes appear sufficient to yield trustworthy rates, the facts being based upon the observations of three successive years.

Typhus, enteric fever, and other forms of fever do not mainly prove fatal among young children, as is the case with measles, scarlet fever, whooping cough and diarrhœa. The death-rates from these diseases cannot, therefore, be corrected in the same manner for the varying-age constitution of the four classes, and must be calculated upon the population at all ages. The deaths from typhus in the three years were equal to an annual rate of 0·26 per 1,000; in the four classes the rates from this disease ranged from 0·07 in the Professional, to 0·33 in the General Service Class. The deaths from simple and undefined forms of fever (114) were scarcely numerous enough to give rates trustworthy for comparative purposes; it may be noted, however, that the deaths returned under this heading gave rates ranging from 0·07 in the Artisan Class to 0·17 in the Professional Class. The deaths referred to enteric fever in the three years were 410, and equal to an annual rate of 0·39 per 1,000; in the several classes this disease caused a rate of 0·25 in the Professional Class, 0·34 in the Artisan Class, 0·37 in the General Service Class, and the highest rate 0·60 in the Middle

Class. This excess of mortality from enteric fever in the Middle Class is noteworthy, more especially as a similar excess from diphtheria is debited to the same class.

The fatal cases of diphtheria in the three years were but 80, and were equal to an annual rate of 0·08 per 1,000 of all ages. The lowest rate from this disease was 0·04 in the General Service Class, while in the other classes the rates ranged upwards to 0·08 in the Artisan Class, 0·10 in the Professional Class, and 0·14 in the Middle Class. It is impossible, without further information, based upon a larger observation of facts, to assign any satisfactory reason for this excess of mortality from enteric fever and diphtheria in the Middle Class population of Dublin. A similar fact was, however, pointed out by Dr. Russell, the Medical Officer of Health for Glasgow, in one of his valuable statistical reports, issued a few years since, on the mortality from these diseases in that city. Dr. Russell suggested that the comparative immunity from these diseases enjoyed by the poorer classes of the population of Glasgow arose from the fact that, as a rule, their houses had no internal communication with the sewers, which are so fruitful a source for distributing infection from these diseases.

This subject of the varying rates of class mortality from different zymotic diseases, calls for further investigation at the hands of Medical Officers of Health with a view to determine, if possible, whether the variation in the death-rates is due to difference of disease-prevalence, or to difference of case-mortality, or to both.

The class variations in the death-rates from phthisis and from diseases of the respiratory organs are very marked. The mean annual death-rate from phthisis in Dublin in the three years under notice was 3·71 per 1,000, which exceeded by 1·55 (or more than 70 per cent.) the mean rate from the same disease in London in the same years. The death-rates from phthisis in different populations should be corrected for variations of age-distribution, but Dr. Grimshaw's figures do not admit of this being done in a satisfactory manner, so for present purposes it will be necessary to adopt the rough method of correcting the rates in the various classes by assuming that all the deaths from phthisis occurred between the ages of 20 and 40 years; this method yields more trustworthy rates for comparative purposes than the proportions of deaths from this disease to the total population at all ages. By this method it appears that the death-rate from phthisis, which did not exceed 1·96 per 1,000 among the Professional Class, ranged upwards to 6·29 in the Middle Class, 6·21 in the Artisan Class, and 8·64 in the General Service Class. Thus phthisis was more than four times as fatal among the General Service Class as among the Professional Class.

As regards the deaths referred to diseases of the respiratory system, the annual death-rate in Dublin was equal to 5·68 per 1,000 of the population at all ages in the three years 1883-85, and as in the case of phthisis showed a marked excess upon the mean rate in London from the same diseases, which did not exceed 4·14 per 1,000. In order to institute an entirely satisfactory comparison between the rates of mortality from this class of diseases in the various social classes, correction for age differences should be made. Dr. Grimshaw's figures do not, however, admit of this, and fortunately correction in the case of these diseases is not so important as it is in other diseases, as their mortality is greatest among children and elderly persons; and any excess or deficiency in the proportion of young children in a population is generally, to a great extent, balanced by a corresponding deficiency or excess in the proportion of elderly persons. On this account the death-rates from these diseases, calculated upon the population at all ages, in the different classes may be used as approximately representing the true mortality of the population belonging to each class. This death-rate, which was equal to 2·27 per 1,000 in the Professional Class, ranged upwards to 4·51 in the Middle Class, 5·00 in the Artisan Class, and 7·24 in the General Service Class. Thus we may safely assume that mortality from lung disease in Dublin is more than three times as great in the General Service Class as it is in the Professional Class.

From whatever point of view we regard this subject of class mortality, we come back to the fact that the differences are far greater in childhood than at any other period of life. The deaths attributed to convulsions in Dublin, in the three years, were equal to an annual rate of 20·90 per 1,000 of all classes living under 5 years of age; but while the rate was only 2·34 in the Professional Class, it ranged to 11·39 in the Middle Class, 17·95 in the Artisan Class, and 29·51 in the General Service Class. Thus in equal numbers living the mortality from convulsions was nearly thirteen times as great in the General Service Class as in the Professional Class, whereas the mortality from all causes at this age in the two classes was only as five to one.

It is not surprising to find that mortality from violence in the different classes shows nearly as wide variations as does mortality from disease. The annual death-rate from violence in Dublin in the three years was equal to 0·66 per 1,000 of the general population at all ages; in London the mean mortality from the same causes in the same years was 0·73 per 1,000. In the several classes the rate in Dublin ranged from 0·16 in the Professional Class, to 0·52 in the Middle Class, 0·59 in the Artisan Class, and 0·85 in the General Service Class. No correction for differences of age-distribution was possible in the calculation of these death-rates from violence, but as the deaths from this cause are not very unequally distributed among the various age-periods, correction is not in this case so necessary as in the case of other causes of death.

As regards the deaths from "other causes" which represent more than 45 per cent. of the deaths from "all causes," it is useless to attempt any comparison of the rates of mortality in the four classes, without the means of correction for differences of age distribution and other disturbing influences, which are not supplied by Dr. Grimshaw's figures. It may be stated that, without correction, the rate from "other causes" which in the general Dublin population was 12·95 per 1,000, ranged from 9·35 in the Artisan Class, to 11·04 in the Professional Class, 13·49 in the Middle Class, and 15·65 in the General Service Class. It is impossible to estimate how these rates would be affected if they could be duly corrected for age-distribution, but apart from this it is evident that, for some reason, the rate from "other causes" in the Artisan Class is much too low. This is probably to be explained by the fact that all deaths in workhouses (wherein are recorded a large proportion of the deaths of elderly people which would for the most part come under this heading of "other causes") are debited to the General Service Class, although beyond doubt the Artisan Class must contribute a considerable proportion of the deaths occurring in workhouses.

In concluding this examination of Dr. Grimshaw's contribution to the important subject of class mortality, while again bearing testimony to the value of the facts (notwithstanding defects which were probably inseparable from an experiment of this nature), it is necessary once more to protest against the calculated rates which have hitherto been published with them weekly, quarterly, and annually. No attempt has been made to correct these rates for the widely different age-distribution of the various classes, which not only affects the death-rates at all ages, but the death-rates from different diseases. Class rates of mortality in a population no larger than that of Dublin are valueless if published for shorter periods than a year; and then, if not corrected for ages, they are often absolutely misleading. Moreover, in accepting these Dublin statistics as evidence of the relative mortality in different classes, it cannot be too constantly borne in mind that the mean death-rate in Dublin in the three years, from all causes, was 28·47 per 1,000, whereas in London the mean rate in the same years did not exceed 20·3. The relative excess of mortality in Dublin among the Working Classes compared with the Professional Class is possibly greater than in London, or indeed than in most other large English towns. In bringing the statistics, however, before the Statistical Society, I have, quite apart from their great interest, been influenced in great measure by the hope that Medical Officers of Health of large English towns may be encouraged to follow Dr. Grimshaw's example in the construction of similar statistics, and that they may improve upon them.

In conclusion, it may be useful to summarise and repeat a few of the more important deductions that may fairly be drawn from the foregoing analysis of our present knowledge of the rates of mortality prevailing in the various classes of society.

1. The Expectation of Life at Birth, or the Mean Duration of Life, which by the old Carlisle Table did not exceed 39 years, has successively risen to 41 years by Dr. Farr's English Table, and to 44 by my English Table (1876-80), Dr. Farr's Healthy District Table makes it 49 years, and Bailey's and Day's Peerage, and Ansell's Upper Class Tables, give a Mean Duration of 53 years. Failing any mortality statistics for the working classes sufficiently trustworthy for the construction of Life Tables, it may be safely assumed from Dr. Grimshaw's statistics for the General Service Class of the Dublin population, that the Mean Duration of Life of this class can but slightly, if at all, exceed that by Dr. Farr's Liverpool Table, namely, 26 years.

2. The Mean Duration of Life or the Expectation of Life at Birth, may be said to be mainly controlled by the rate of Child mortality. In all the Life Tables based upon the general population of all classes, so great is the mortality during infancy and early childhood, that the Expectation of Life is considerably greater at 10 years of age than it is at birth. For instance, by Dr. Farr's English Life Table (No. 3), Expectation at Birth is 41 years, while at 10 years of age it is 47 years ; and even by his Healthy District Table it is 49 years at birth, while at 10 years of age it is 51 years. By Ansell's Upper Class Table, however, Expectation of Life at Birth is 53 years, and exceeds the Expectation at 10 years of age, when it is 52 years ; and by the Peerage Tables Expectation is 53 years at birth, and only 49 years at 10 years of age.

3. In further explanation of this controlling influence of child-mortality upon the Mean Duration of Life it should be remembered that the annual death-rate of children aged under 5 years, which is 65·7 per 1,000 by the English Table (No. 3), and 39·4 by the Healthy District Table. does not exceed 28·2 by the Upper Class Table, and 20·7 by the Peerage Table. Dr. Grimshaw's figures give an annual rate of 22 per 1,000 among children at these ages in the Professional and Independent Class of the Dublin population.

4. At each of the age-periods subsequent to childhood the greater vitality of the middle and upper classes, compared with

that of the general population, is conspicuously marked by the relatively low death-rates shown by Ansell's Upper Class Tables, by the Peerage Tables, and by Hodgson's Clergy Experience Tables. The result of this comparison between the General and Upper Class Tables naturally implies far greater contrasts between the vitality of the well-to-do and of the working classes, if trustworthy statistics of the working classes existed, which unfortunately they do not. Dr. Grimshaw's figures, however, abundantly support this conclusion.

5. Dr. Ogle's statistics of occupational mortality show that after due correction for age differences, if the mortality of all males aged 25—65 years be taken as 1,000, the relative mortality of males engaged in different occupations ranges from 556 for "Clergy-"man, Priest, and Minister," to 1,879 for "Costermonger, Hawker, "Street-seller;" 2,020 for "General Labourer (London);" and 2,205 for "Inn, Hotel Servant." That these wide differences are not the necessary results of class or social influences may be inferred from the fact that the proportional mortality of "Gar-"dener, Nurseryman," and of "Agricultural Labourer," do not much exceed that of "Clergyman, Priest, Minister," which heads the list.

6. Dr. Grimshaw's contribution to class mortality statistics, dealing with the Dublin population, points to the absolute necessity for bearing in mind the varying age-distribution in different classes of society. For instance, 1,000 of the Professional and Independent Class contains only 75 children under 5 years of age, and 158 of persons aged over 60 years; 1,000 of the Artisan Class, on the other hand, contains 121 children under 5 years, and only 63 over 60 years of age. So different, indeed, is the age-distribution of Dr. Grimshaw's four social groups, that if the English Life Table rates of mortality prevailed in each group, at each of five age-periods, the death-rate at all ages would, from this disturbing influence alone, range from 19·5 in the Middle Class to 25·2 in the Professional and Independent Class.

7. Corrected for difference of age-distribution, and taking 1,000 to represent the mortality represented by Dr. Farr's English Life Table (No. 3), the recorded mortality in Dublin during the three years 1883-85 was equal to 632 in the Professional and Independent Class, to 1,093 among the Artisan Class, to 1,333 among the Middle Class, and to 1,659 among the General Service Class, which in Dr. Grimshaw's classification includes all the inmates of workhouses. Thus mortality in the General Service Class in Dublin is nearly three times as great as that in the Professional and Independent Class.

8. The effect of class influence in each of the various age-

periods is very striking. Thus, the mean annual mortality among children aged less than 5 years is just five times as great in the General Service Class as in the Professional and Independent Class. At the next age-period, 5—20 years, the difference of mortality between these two classes is very nearly as great, and in each of the three following age-periods of adult life the rates of mortality appear to be more than twice as high in the General Service Class as in the Professional and Independent Class.

9. The varying incidence of mortality from zymotic and other diseases upon the different classes is fully as marked as is the mortality from all causes at the several age-periods. For instance, mortality from measles is nearly ten times as great in the General Service Class as in the Professional and Independent Class; from whooping cough more than four times as great; from diarrhœa nearly three times as great; from typhus nearly five times as great; from phthisis more than four times as great; from lung diseases more than three times as great; from convulsions nearly thirteen times as great; and from violence more than five times as great in the General Service Class as in the Professional and Independent Class.

The object of this paper has mainly been to throw what light our present knowledge on the subject renders possible on the variations of class mortality, and to show the desirability for further investigation in the direction of Dr. Grimshaw's statistics.

The future further reduction of our now steadily declining national death-rate depends in great measure upon the faith of sanitary reformers in the possibility of controlling the present wide range between the death-rates of the upper and lower classes. This is not the place to discuss this important problem, although one or two deductions from the facts dealt with in this paper should suggest that high death-rates are not the inevitable fate of the working classes. We have seen that the mortality of males aged 25—65 years occupied as Agricultural Labourers, Gardeners and Nurserymen, notwithstanding their poverty and hardships, is not much in excess of that of Clergymen, Priests, and Ministers, and is considerably lower than that of Barristers and Solicitors, or of Medical Practitioners. This points to the conclusion that poverty and hard work do not necessarily kill; but only when poverty and hardships are accompanied by dirty houses, impure air, and above all by intemperance, which so frequently prevails among badly housed populations. There is a fatal tendency to regard the terribly high rate of infant and child mortality among the working classes as inevitable and beyond control. With reference to this, it may be useful to point out that in the Peabody Buildings situated in various parts of London, and now containing a population of more than 20,000 persons belonging to the artisan and labouring classes, the death-rate of infants under 1 year of age during the five years 1882-86 averaged 144 per 1,000 of the registered births, and was 7 per 1,000 below the mean rate in the entire London population during the same five years. Thus it would appear that the death-rate of children, which accounts for so large a proportion of the variations of class mortality, is in large measure governed by the housing of the population.

In the face of such facts as these, it is impossible to doubt that much of the large excess of mortality among the working classes is distinctly within the control of effective sanitation. It is equally impossible at present to put a limit to the possible amount of further reduction in the death-rate that might result from a more general application of the important sanitary reform which is being slowly effected by the companies and other agencies now devoting their resources to the improvement of the dwellings of the poor.

APPENDIX.

TABLE I.—*Expectation of Life (Mean after Lifetime) by various Life Tables at Different Ages.*

Cols. .	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Ages.	Northampton.*	Carlisle.	English Life (No. 3).		English Life Table (1876-80).		Twenty English Assurance Offices. (H^M and H^F.)		Thirty American Assurance Offices.		Hodgson's Clergy Experience.	Farr's Healthy District.	Ansell's Upper Class.	Bailey's and Day's Peerage.
	Persons.	Persons.	Males.	Females	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Persons.	Persons.	Persons.
0....	25·18	38·72	39·91	41·85	41·92	45·25	—	—	—	—	—	49·00	53·08	52·62
10....	39·78	48·82	47·05	47·67	48·16	50·32	50·29	48·20	49·99	48·05	—	51·08	52·05	49·39
20....	33·43	41·46	39·48	40·29	39·86	42·10	42·06	40·82	43·07	40·82	—	43·45	44·52	42·21
30....	28·27	34·34	32·76	33·81	32·47	34·75	34·68	34·50	35·85	34·89	36·86	36·64	37·88	35·96
40....	23·08	27·61	26·06	27·34	25·59	27·68	27·40	28·25	28·48	28·48	29·05	29·64	30·87	28·86
50...	17·99	21·11	19·54	20·75	19·14	20·80	20·31	21·62	21·24	21·33	21·58	22·44	23·61	21·95
60....	13·21	14·34	13·53	14·34	13·31	14·32	13·83	14·85	14·56	14·37	14·94	15·37	16·43	15·16
70....	8·60	9·18	8·45	9·02	8·44	9·08	8·50	9·08	8·97	8·62	9·50	9·61	9·86	9·61
80....	4·75	5·51	4·93	5·26	4·96	5·38	4·72	5·45	4·87	4·49	5·66	5·51	5·53	5·45

* The Northampton Tables, being based upon deaths alone, do not yield (as was shown by Dr. Farr) trustworthy figures for "Expectation of Life." They are however inserted here as having historical if not actuarial value, for the Northampton Tables were at one time very widely adopted by insurance offices.

TABLE II.—*Annual Death-Rate at Five Age-Periods, by Six Life Tables.*

Cols.	1	2	3	4	5	6
Ages.	English Life Table (No. 3). (Farr.)	English Life Table (1876-80). (Humphreys.)	Healthy District Life Table. (Farr.)	Experience Tables; Healthy Insured Lives. (Inst. of Actuaries.)	Upper Classes. (Ansell.)	Clergy Experience. (Hodgson.)
0—	65·726	60·973	39·442	—	28·159	—
5—	7·106	4·791	5·790	—	5·188	—
20—	10·300	8·555	8·453	8·041	8·428	8·357
40—	18·301	18·344	13·003	16·126	12·037	11·720
60 and upwards	71·748	72·252	63·012	71·310	60·879	67·736

Note.—The rates in each of the first five columns in the above table are for persons (male and females). The Clergy Experience Table, however, obviously deals only with males, whic explains the relatively high rate at the last age-period.

Table III.—*Proportional Age-Distribution of Various Classes of the Population of the Dublin Registration District, enumerated at the Census in* 1881.

Ages.	All Classes.	Professional and Independent Class.	Middle Class.	Artisan Class and Petty Shopkeepers.	General Service Class and Workhouse Inmates.
All ages	1,000·00	1,000·00	1,000·00	1,000·00	1,000·00
Under 5 years	107·99	74·58	109·02	121·49	104·85
5—20	284·55	236·91	319·00	301·02	269·78
20—40	348·60	309·61	367·21	329·64	362·46
40—60	185·23	220·85	156·71	185·15	188·84
60 and upwards	73·63	158·05	48·06	62·70	74·07

Table IV.—*Recorded and Corrected Annual Death-Rates per Thousand in Four Classes of the Dublin Population, in the Three Years* 1883-85.

Classes.	Recorded Annual Death-Rate per 1,000.				Standard Rate according to English Life Table.	Comparative Mortality in 1883-85, Standard Rate taken as 1,000.
	1883.	1884.	1885.	Mean in Three Years, 1883-85.		
All classes	29·3	28·3	28·9	28·5	21·4	1,331
Professional and independent class	19·8	14·4	14·0	15·9	25·2	632
Middle class	24·2	27·2	27·6	26·0	19·5	1,333
Artisan class and petty shopkeepers	23·8	22·7	24·5	23·4	21·4	1,093
General service and workhouse inmates	36·8	35·2	35·4	35·4	21·3	1,659

Note.—In the above table the standard rates for the different classes represent the numbers of deaths which 1,000 of the population of each class would give, if the death-rate at each of five age-periods in each class corresponded with the rates in those age-periods shown by the English Life Table No. 3. The comparative mortality represents the proportion which the recorded mean mortality in 1883-85 bears to the standard rates (thus making due allowance for variations of age-distribution), such standard rates being in each case taken as 1,000.

TABLE V.—*Dublin Registration District. Annual Rate of Mortality in Various Classes of the Population at different Age-Periods during the Three Years* 1883-85.

Occupation or Social Position.		Ages.					
		All Ages.	0—	5—	20—	40—	60 and upwards.
All persons	Years of life	1,053,042	113,723	299,642	367,090	195,055	77,532
	Deaths	29,985	9,439	2,740	4,964	5,753	7,089
	Rate per 1,000	*28·47*	*83·00*	*9·14*	*13·52*	*29·49*	*91·43*
Professional and independent class	Years of life	91,514	6,825	21,681	28,333	20,211	14,464
	Deaths	1,454	150	74	198	261	771
	Rate per 1,000	*15·89*	*21·98*	*3·41*	*6·99*	*12·91*	*53·30*
Middle class	Years of life	172,405	18,795	54,998	63,308	27,018	8,286
	Deaths	4,487	1,113	447	861	794	1,272
	Rate per 1,000	*26·03*	*59·22*	*8·13*	*13·60*	*29·39*	*153·51*
Artisan class and petty shopkeepers	Years of life	322,395	39,167	97,048	106,275	59,691	20,214
	Deaths	7,540	2,778	867	1,244	1,423	1,228
	Rate per 1,000	*23·39*	*70·93*	*8·93*	*11·71*	*23·84*	*60·75*
General service class (including workhouse inmates)	Years of life	466,728	48,935	125,915	169,173	88,136	34,569
	Deaths	16,504	5,398	1,352	2,661	3,275	3,818
	Rate per 1,000	*35·36*	*110·31*	*10·74*	*15·73*	*37·16*	*110·45*

Note.—The rates of mortality in this table are based upon the estimated population in the middle of the year 1884, multiplied by 3, and thus constituting the years of life.

TABLE VI.—*Dublin Registration District. Annual Rate of Mortality among the Sub-divisions of Dr. Grimshaw's Middle Class at different Age-Periods during the Three Years* 1883-85.

Occupation or Social Position.		Ages.					
		All Ages.	0—	5—	20—	40—	60—
All persons (of Middle Class)............	Years of life	170,283	18,564	54,321	62,529	26,685	8,184
	Deaths.....................	4,487	1,113	447	861	794	1,272
	Rate per 1,000	*26·35*	*59·95*	*8·23*	*13·77*	*29·75*	*155·43*
General body of officials — civil service, banking, &c.	Years of life	15,414	1,953	4,584	5,307	2,739	831
	Deaths.....................	283	53	23	66	53	88
	Rate per 1,000	*18·36*	*27·14*	*5·02*	*12·44*	*19·35*	*105·90*
Traders (except petty shopkeepers) business managers, &c.	Years of life	54,621	8,073	17,436	15,189	10,692	3,231
	Deaths.....................	1,491	427	155	244	285	380
	Rate per 1,000	*27·30*	*52·89*	*8·89*	*16·06*	*26·66*	*117·61*
Clerks and commercial assistants	Years of life	67,761	6,741	21,495	29,193	8,247	2,085
	Deaths.....................	1,334	461	164	344	178	187
	Rate per 1,000	*19·69*	*68·39*	*7·63*	*11·78*	*21·58*	*89·69*
Miscellaneous..	Years of life	32,487	1,797	10,806	12,840	5,007	2,037
	Deaths	1,379	172	105	207	278	617
	Rate per 1,000	*42·45*	*95·72*	*9·72*	*16·12*	*55·52*	*302·90*

Note.—The rates of mortality in this table are based upon the enumerated population in 1881, multiplied by 3, and thus constituting the years of life. The rates, therefore, for the entire Middle Class differ slightly from those given in Table V, where the years of life are derived from the estimated population in the middle of 1884, instead of from the enumerated population in 1881.

TABLE VII.—*Dublin Registration District. Annual Rate of Mortality from different Causes in Various Classes of the Population during the Three Years* 1883-85.

Occupation or Social Position.	Years of Life.	All Causes.	Small Pox.	Measles.	Scarlet Fever.	Typhus.	Whooping Cough.	Diphtheria.	Simple Fever.	Enteric Fever.	Diarrhœa.	Total Zymotic Diseases	Phthisis.	Convulsions.	Diseases of Respiratory System.	Violence.	Other Causes.
All persons	1,053,042	29,985	2	346	726	278	656	80	114	410	772	3,384	3,904	2,377	5,978	694	13,648
	Rates p. 1,000	*28·47*	*0·00*	*0·33*	*0·69*	*0·26*	*0·62*	*0·08*	*0·11*	*0·39*	*0·73*	*3·21*	*3·71*	*2·26*	*5·68*	*0·66*	*12·95*
Professional, &c.	91,514	1,454	—	3	22	6	9	9	16	23	22	110	96	16	208	15	1,009
	Rates p. 1,000	*15·89*	—	*0·03*	*0·24*	*0·07*	*0·10*	*0·10*	*0·17*	*0·25*	*0·24*	*1·20*	*1·05*	*0·17*	*2·27*	*0·16*	*11·04*
Middle class	172,405	4,187	1	33	100	25	77	24	19	103	133	515	566	214	778	90	2,324
	Rates p. 1,000	*26·03*	*0·01*	*0·19*	*0·58*	*0·15*	*0·45*	*0·14*	*0·11*	*0·60*	*0·76*	*2·99*	*3·28*	*1·24*	*4·51*	*0·52*	*13·49*
Artisan class	322,395	7,540	1	98	217	91	224	26	24	111	187	979	1,040	703	1,613	191	3,014
	Rates p. 1,000	*23·39*	*0·00*	*0·30*	*0·67*	*0·28*	*0·69*	*0·08*	*0·07*	*0·34*	*0·61*	*3·04*	*3·23*	*2·18*	*5·00*	*0·59*	*9·35*
General service	466,728	16,504	—	212	387	156	346	21	55	173	430	1,780	2,202	1,444	3,379	398	7,301
	Rates p. 1,000	*35·36*	—	*0·45*	*0·83*	*0·33*	*0·74*	*0·04*	*0·12*	*0·37*	*0·93*	*3·81*	*4·72*	*3·09*	*7·24*	*0·85*	*15·65*

Note.—The rates of mortality from the several causes of death given in this table are all calculated on the population at all ages. The rates from those diseases, the mortality from which falls principally upon children, are in Table VIII calculated upon the population under 5 years of age in the various classes.

TABLE VIII.—*Dublin Registration District. Annual Rate of Mortality under Five Years of Age, from several Diseases in various Classes of the Population, during the Three Years* 1883-85.

Occupation or Social Position.	Years of Life under 5 Years of Age.	Deaths, and Death-Rates per 1,000, from				
		Measles.	Scarlet Fever.	Whooping Cough.	Diarrhœa.	Convulsions.
All persons..	113,723	346	726	656	772	2,377
	Rates p. 1,000	*3·04*	*6·38*	*5·77*	*6·79*	*20·90*
Professional, &c.	6,825	3	22	9	22	16
	Rates p. 1,000	*0·44*	*3·22*	*1·32*	*3·22*	*2·34*
Middle class	18,795	33	100	77	133	214
	Rates p. 1,000	*1·76*	*5·32*	*4·10*	*7·08*	*11·39*
Artisan class	39,167	98	217	221	187	703
	Rates p. 1,000	*2·50*	*5·54*	*5·72*	*4·77*	*17·95*
General Service	48,935	212	387	346	430	1,444
	Rates p. 1,000	*4·33*	*7·91*	*7·07*	*8·79*	*29·51*

DISCUSSION *on* MR. N. A. HUMPHREYS'S PAPER.

THE CHAIRMAN (Dr. T. Graham-Balfour, F.R.S.) said that the paper was an important one, because upon such facts as those brought forward in it must be based the sanitary work intended to reduce the rate of mortality of the population. Without accurate statistics of the causes of death in different classes, it would be impossible to know what remedies ought to be applied.

Mr. A. H. BAILEY, F.I.A., said he felt some distrust as to the illustrations drawn from the statistics of the city of Dublin. The division into classes was most arbitrary. Who could say where the middle class began and where it ended? Again, the "general service" class included the inmates of workhouses. The majority of children born in workhouses were illegitimate, and would not be so well cared for as legitimate children. Mr. Humphreys attached great importance to a large number of facts, but he (Mr. Bailey) on the contrary thought that accurate information derived from a smaller number of facts, as in the case of a particular society, was of much more value than statistics derived from general returns to census commissioners. The counting of heads was sufficiently accurate, but he did not think that the results with regard to particular occupations were to be relied upon for such an investigation as this.

Mr. ROBERT LAWSON, LL.D., said that it was a remarkable fact that throughout Ireland there was a very large mortality in the towns. In the whole country, including the towns, for the three years 1883-85 the mortality was, males 18·7 per 1,000, females 18·2 per 1,000. In Dublin for the same period the rate for all classes and all ages was 28·6 per 1,000, while in the province of Leinster, excluding the metropolis, it was only 17·4 per 1,000. Similarly in the 16 large towns of Ireland the mortality was 26·4, while in the rest of the country it was only 15·7. These were very extraordinary facts. Of course the returns might be in error to a certain extent, but that was the result given by the returns. The mortality from phthisis in Dublin was, for males 2·02 per 1,000, for females 2·27; while in England from 1851 to 1860 it was, for males 2·58, for females 2·77; from 1861 to 1870 it was, for males 2·47, for females 2·48; from 1871 to 1880 it was, for males 2·209, for females 2·028; so that in the first decennium the mortality of females was as much in excess of that of the males as it was short of that of the males during the last few years. That was one of those peculiarities which were well worth studying. The deaths in the public institutions in Dublin for the three years were 8·7 of the total mortality, while in the country parts of Leinster they were only 2·3. Taking the whole country, they were 7·3 per 1,000 for the towns, and in the rural parts only 1·8 per 1,000. It might be that the very low rate in Ireland generally was somewhat connected with the small number of children born there, which, he believed, was very much less than in England. Mr. Humphreys alluded to diarrhœa, and made reference to the frequency of enteric fever among the second class of the population. It was higher amongst that class than either in the class above or below them, and the explanation given by Dr. Russell of Glasgow, where a similar state of things was observed, was that that class was brought into more frequent connection with drains; but he thought another reason might be found in the fact that the food of the children deteriorated as the class descended. His experience of Irish parents was that they would do anything for their children, without thinking what the result might be. There was evidently something connected with Irish towns which led to a great deal of sickness. The extremely low rate of mortality throughout the rest of the country showed that it was not due to the climate or the food.

Mr. F. G. P. NEISON, F.I.A., said that one point strongly brought out by the paper was the necessity of being extremely cautious in drawing deductions from different rates of mortality, without first of all carefully examining that the facts were on precisely the same footing. Nothing was more common than to hear that one town or occupation was better in point of health than another, simply because the aggregate mortality in the town or occupation was less than in the other; those who made the assertion never thinking it necessary to inquire whether the circumstances of the two groups were comparable. In his opinion the age-distribution, the proportion of the sexes, the occupation and social status of the people, would often suffice materially, if not entirely, to account for the variation in the respective rates of mortality. The question raised by Mr. Humphreys's paper was by no means a new one. Forty years ago the late Mr. Neison read a paper before the Society on the comparison of the rates of mortality in St. George's-in-the-East and St. George's, Hanover Square. Dr. Farr also very fairly tackled the subject when he dealt in his valuable reports with the subject of the density of population, which had very much indeed to do with the question. Where the population was very dense there, as a rule, they were of a lower social grade; and it was a well known fact that the rate of mortality in different sections of towns depended more on the density of population than on any other single element. If different occupations, such as those of carpenters, joiners, blacksmiths, butchers, were taken, it would in nearly every case be found that the mortality among the followers of those occupations was greater in the towns than in country districts. He was very much surprised to hear Mr. Humphreys's statement that there did not exist any satisfactory mortality statistics for the working classes of this country. Both the Foresters and the Odd Fellows, each body comprising over 600,000 members in this country alone, had on more than one occasion gone very carefully into the statistics of their mortality and sickness. The Foresters' inquiry was conducted under his own general superintendence, and he could vouch for the general accuracy of the results. In that case the years of life under observation numbered more than 1,300,000, and the latest investigation of the Odd Fellows was quite as large. The facts obtained from these inquiries showed some very interesting results. A few years ago Mr. Humphreys read a paper before the Society on the rate of mortality among the population of this country in recent years, in which he showed that the mortality rate had decreased; but the examination of the foregoing returns of the working classes did not bear out that view. Taking the figures for 1866 to 1870, and 1870 to 1875, the latter five years showed not a very considerable but still a marked increment in the mortality. Noticing that, he examined what sections of the investigation the increment was due to; and this fact came out, that whereas in the rural districts the rate of mortality was somewhat less than in the previous quinquennium, the mortality in every instance for the same group of ages in the towns and cities for the latter quinquennium was slightly more. Taking it generally, the results of these investigations was to show that Mr. Humphreys laboured under a very considerable mistake in assuming that the conditions under which the labouring classes in this country lived were so injurious as to bring down the average duration at birth of their life to 26 years, from the 41 years which was the average for the whole population as brought out by the English Life Table No. 3. If they compared the expectation of life according to the English Life Table No. 3 with that derived from the returns of the working classes to which he had alluded, it would be seen that for all practical purposes they were the same. For the age of 20 the English Life Table presented an expectation of 39½ years; the working class experience gave 40 years. The Odd Fellows' and Foresters' returns all related to a period prior to 1875, and therefore it was open to Mr. Humphreys to say that if an opportunity was afforded of examining returns for a subsequent period, a different state of things might be found to exist. He admitted that the returns in connection with the Odd Fellows and Foresters practically excluded the very lowest strata of the working classes, but considering the magnitude of these two bodies, he thought they fairly represented the better class of working men. Quite recently, however, he had had occasion to look into the experience of two large burial societies whose assurances were mostly confined to the lowest class, the contributions being collected by a few pence at the time from week to week. The results brought out by those returns were extremely instructive. In one case the observations extended over fifteen years, and the years of life observed upon were over seven millions; while in the other instance they were considerably more than a million. As might be expected, the mortality among this lower section of the population was found to be extremely high. Taking for example the ages from 25 to 35, the rate of mortality of the whole population throughout the country was about 10 per 1,000, but in those two organisations it was 14; from 35 to 45 the mortality according to the English Life Table was 13, but in those societies it was 21. This mortality rate did not materially differ from what was shown by Dr. Farr to prevail in sixteen of the largest towns of the country, in fact it was only two or three points higher. That it should be higher was to be expected, because London, for instance, took in Kensington, Hampstead, and other places favourably situated so far as mortality was concerned. Most of the other towns had similarly favoured localities. The mortality experience of these burial societies might be expressed thus: Taking the equation of life, which meant out of one hundred born how many years would elapse before one-half of them were dead, which was really a better sanitary gauge than the expectation of life, it would be found that whereas according to the English Life Table that period was 45¾ years, the section of the population embraced in these societies showed a period of 38 years, which was, of course, a material difference. There was one satisfactory feature connected with the experience of these burial societies, namely, that within the last five years there had been some slight improvement in the rates of mortality. He thought that the Registrar-General of births, deaths, and marriages would render a public service to the country if in his reports he would lay stress upon the principles on which a comparison was to be made of the rates of mortality between one town and another, and one occupation and another. Great ignorance prevailed upon this subject, and a person could say, "In our parish the rate of mortality is only 16 per 1,000, whereas in the whole metropolis it is 22;" forgetting that the aggregate mortality must depend on many points, as the age-distribution, the sex-distribution, the occupation, and the extent to which the struggle for existence was stringent or not, &c. Without careful examination into these matters no true comparison between the average mortality rates was practicable.

Mr. Rowland Hamilton wished to ask how far the rural population represented a selected population. There were certainly some parishes in which labourers who were not of steady habits could find no place of rest. Was there a general movement of those who were morally on a lower scale, and perhaps weak and comparatively inapt to labour, who drifted into the towns? That question ought to be carefully borne in mind whenever comparisons were drawn between the mortality of town and country.

Dr. James Edmunds, Medical Officer of Health for St. James's, said there were a great many points in regard to which medical officers of health would like the registrars to help them The *locus* of a town or city must be considered before they could estimate what ought to be the death-rate. Dublin lay on a modern mass of alluvium brought down by the Liffey, in which the foundations of the houses were almost all damp. That state of things must necessarily account to a great extent for the large rate of mortality as compared with many other towns. He quite agreed with Dr. Lawson that the question of infant mortality depended a great deal on the care with which young children were fed. He had known cases of sturdy, healthy women with sturdy, healthy husbands, having had five or six children all of whom had died, simply because the women were drunken or neglectful in preparing or selecting the children's food. No doubt, too, the consumption of alcohol had an effect upon the death-rate, and it would be interesting to know how Dublin stood in its consumption of alcohol per head of the population. The consumption of tobacco again in the parents was a prolific source of weakness to the children, while the fumes of tobacco smoke in small apartments where the baby was in the cradle, often proved a serious injury to young infants. St. Petersburg, which was also on alluvial ground, had a mortality nearly two and half times as great as that of London. Berlin during the last ten or twelve years had vastly improved in all its sanitary arrangements, and might be said to have discovered water closets during that period. It would be interesting to know to what extent vaccination was accountable for the fact that during three years there were only two deaths registered in Dublin from small pox. Badly built houses, and small, close rooms, would account for the enormous mortality which measles produced among the children of the poor. While thanking Mr. Humphreys for the great labour which he had bestowed upon this analysis of the Dublin death-rates, he confessed that the mass of material was not in such shape that he could focus his mind upon it with much profit. Dr. Edmunds urged that it was essential now-a-days to preface the study of the death-rates of a particular town by some outline of the geology and character of its site, its climatic conditions, its water supply, and the occupations and habits of the people.

Mr. H. Moncreiff Paul said Mr. Humphreys's paper, valuable though it was, must be regarded as merely suggestive, and agreed with Mr. Bailey that it was rather a dangerous thing to generalise from the statistics given with regard to Dublin, as to what might be the state of things in Great Britain generally. Dr. Grimshaw's analysis of the different classes, however applicable to Dublin, would not apply to London, or to any other great commercial centre. For example, the merchant of Dublin could no more be compared with the merchants of the great English mercantile cities, than can the blacksmith of to-day be compared with the one of fifty years ago; their official life and surroundings were wholly different. Mr. Humphreys had acknowledged the want of trustworthy statistics of class mortality in the opening of his paper, and it was therefore desirable that the subject should be taken up by the Registrar-General, and that a comparison should be made between similar classes in different towns as far as possible. Until that was done it would be highly fallacious to draw any deductions from the Dublin tables which Mr. Humphreys had given in the appendix to his paper.

The Rev. I. Doxsey said that the increase in the revenue from tobacco amounted to something like 2 million £ from 1876 to 1886, and he thought that the smoking which took place among the young lads of the present day could not fail to tell upon the death-rate. The comparison of Dublin with other towns throughout the country was scarcely a fair one. He had lived in Dublin for some years, and was convinced that the fact that the masses of the people there drank large quantities of whisky, while Englishmen mostly drank malt liquor, made a very considerable difference in the death-rate.

Mr. S. Bourne, referring to the superior longevity of the clergy, said that that was only what might be expected, considering that they were generally speaking more moral and sober in their lives than the average run of people. It must not however be forgotten, that they were also generally in more easy circumstances in the later portion of their lives, and that they remained attached to their class for a great length of time, whereas professional and mercantile men dropped out of their class when they retired from business. The middle class too during the working period of their lives struggled very hard, but at a later period they often took their rest and ease, and that tended to the preservation of life. The same might be said with regard to barristers and solicitors. The upper classes were more shielded from contagion, and better cared for in childhood, and consequently it was only natural to expect a larger death-rate among the poorer classes. He quite agreed that the circumstances of Dublin were in many respects so very different from those of London, that no general deduction could be made from them. It was no wonder that the death-rate among the professional class was much lower than among the lower classes in Dublin, because the former were the least worked in the world, whereas the latter had to work hard, surrounded by the worst of circumstances. There was always an element of great doubt connected with the experiences of such societies as the Foresters and Odd Fellows, because it was never known how many persons left them. Many left through poverty, and others were thrust out. This was particularly the case with burial societies. It was true there were counteracting influences there, but the desire was to get rid of those in feeble health, and it became a serious question how far the practice of insuring juvenile lives should be tolerated to the extent that it at present was. It was a disgrace to the country that so much of the earnings of the people was spent in bringing children into the world and retaining them in it for so short a time in consequence of the lack of sanitary regulation and the intemperance of their parents. To his mind that was a strong argument in favour of emigration. Crowding together in towns facilitated early and imprudent marriages.

The CHAIRMAN proposed a vote of thanks to Mr. Humphreys for his paper. He said Dr. Lawson had spoken of the greater prevalence of phthisis among the population of Dublin than in England. His impression was that was to some extent a result of racial distinction, that there was a greater tendency to tubercular phthisis among the Celtic race than among the population of England.

Mr. HUMPHREYS, in reply, said that to a certain extent he agreed with Mr. Bailey's objection to Dr. Grimshaw's statistics, but if no attempt were made to obtain statistics in that and other directions, there could be no statistical progress. The low death-rate from phthisis in Ireland might easily be explained. The population there was depleted by emigration at those very ages when phthisis was generally most fatal. The country population was especially depleted of its young people, whereas in Dublin the age proportion of the population was more normal, because young people flocked there as domestic servants, shop assistants, &c. No doubt defective registration had a great deal to do with the low death-rate from all causes in Ireland generally. He agreed with Mr. Neison as to the great importance of the question of density of population, but at the same time it was quite possible, as had been proved in the Peabody Buildings and other places, to have great density without excessive death-rates. The best statistics that he had seen with regard to this subject were those by Dr. Russell, who had published some very valuable tables relating to certain statistical divisions of Glasgow, giving the average number per room, and then showing the effect on the death-rate. With regard to the statistics of friendly societies, probably he (Mr. Humphreys) had not given them quite sufficient attention. They did not however come within the scope of his paper, because he wanted a natural population including men, women, and children, that is persons of all ages. In friendly societies children were not admitted as members. Then again the members were principally of the artisan class, and were not comparable with Dr. Grimshaw's general service class. When numbers got out of work or out of health they often ceased to be members, and therefore the mortality in friendly societies did not very fairly represent that of the entire working classes. Mr. Hamilton seemed to be under the impression that it was the weakly ones who left the country and came to towns, but he thought the tendency rather was for the healthier members of a family to leave their rural homes and come to town. He wished distinctly to point out that he had attempted no comparison between Dublin and other towns, but merely between one class and another all resident in Dublin. Mr. Bourne thought that there was a possibility of persons dropping out of an occupation, and so affecting Dr. Grimshaw's tables; but if, for instance, barristers when they ceased to practise called themselves "gentlemen," the change would appear in the census schedules as well as in the death register, and therefore would not affect the calculations.

The ANNUAL TAXES *on* PROPERTY *and* INCOME.

By THOMAS HENRY ELLIOTT, ESQ.

[Read before the Royal Statistical Society, 15th March, 1887.
SIR RAWSON W. RAWSON, K.C.M.G., C.B., a Past President, in the Chair.]

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I.—*Introduction.*

IF it is with hesitation that I venture to submit for your consideration this evening some observations as to the past history and present and future position of the annual taxes on property and income, it is rather that I mistrust my own ability to follow worthily in the path marked out by those eminent members of the Society who have given their attention to the subject, and many of whom are still working amongst us, than that I feel that any apology is necessary for the subject itself. Taxes which, during little more than a generation, have contributed over 300 million £ to the national exchequer, which at the present moment constitute one-fifth of the whole taxation of the country, and by the aid of which so many great national enterprises have been carried out, and so many beneficial reforms effected, cannot but deserve detailed and periodical examination, alike in their fiscal and their social aspects.

For the conduct of such an examination I know too well my deficiencies, and I can only plead as my excuse for attempting to take some part in it, that the subject seemed that which lay closest to my hand, and upon which, if at all, I could hope to add with advantage to the transactions of the Society.

Let me say at the outset, however, that I can supply but few new statistics in addition to those which, in some form or other, are available to the careful student of the literature of blue books. So far as I know, there are no materials of importance in the archives of Somerset House which have not been published either in the ordinary annual, or in the special periodical reports of the Commissioners of Inland Revenue. I cannot therefore do much more than weave together the various threads which are already at the disposal of the public, and examine them by the light of that revenue law which all are supposed to know to the letter, but with which probably few fully comply.

The taxes with which I propose to deal this evening, under the title of "The Annual Taxes on Property and Income," are those ordinarily known as the income tax and the land tax. "For "nothing can be more certain, though but little known, than that "the so called land tax was in fact a property and income tax, and "moreover, that personal estate was quite as much the object of "the charge as land."[1] I have much hesitation as to whether to these two I ought not to have added the inhabited house duty, the incidence of which has been so much disputed. I am, however, disposed to think with Mr. Dudley Baxter, that that duty "is "almost entirely a tenant's tax, and does not fall on the land-"lord;"[2] although I am of course aware that many high authorities take an opposite view, and that in the recent return "of Imperial Taxation borne by Real and by Realised Personal "Property," the inhabited house duty is described as "falling "solely upon real property."[3]

Permit me, however, to restrict my remarks this evening to the two taxes I have named.

II.—*The Fluctuations in the Rate of Income Tax.*

The first table, A, which I desire to submit for your consideration, has been constructed in order to illustrate the wide fluctuations which have taken place in the proportion borne by the income tax to the total taxation of the country. I regret that I have been compelled to omit years prior to 1857, the date when our present system of national book-keeping may be said to have commenced, but the variations which have occurred since that time are quite wide enough to warrant the conclusion which I seek to draw.

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[1] "Thirteenth Report of the Commissioners of Inland Revenue," p. 109.

[2] "Taxation of the United Kingdom," p. 65.

[3] House of Commons Paper No. 345 of 1885, p. 6.

TABLE A.—*Statement showing the Amount of Taxes actually Received (less Stamps in lieu of Fees), the Net Produce of Income Tax, the Proportion of Income Tax to the Total Amount of Taxes, the Rate of Income Tax, and the principal Cause of the Increase or Decrease in the Rate for each Year from* 1857-58 *to* 1885-86. *United Kingdom.*

Year.	Amount of Taxes actually Received (less Stamps in lieu of Fees).*	Net Produce of Income Tax.	Percentage of Income Tax to the Total Receipt of Taxes.	Rate of Income Tax.	Principal Cause of Increase or Decrease.
	£	£		*d.*	
1857....	62,910,000	11,396,434	18·1	7	
'58....	59,673,000	6,610,102	11·0	5	
'59....	65,489,000	9,666,141	14·7	9	Increased army and navy estimates
'60....	64,918,000	10,957,060	16·8	10	French Commercial Treaty
'61....	63,836,000	10,471,207	16·4	9	Surplus of revenue
'62 ..	63,535,000	10,482,588	16·5	9	
'63....	62,682,000	9,101,994	14·5	7	Surplus of revenue
'64....	62,522,000	7,985,773	12·7	6	
'65....	59,976,000	6,321,692	10·5	4	
'66....	61,116,000	5,637,294	9·2	4	
'67....	61,507,000	6,184,166	10·5	5	Abyssinian War
'68....	63,698,000	8,623,507	13·5	6	
'69....	66,469,000	10,108,588	15·2	5	Changes in period of collection
'70....	60,386,000	6,290,611	10·4	4	Surplus of revenue
'71....	64,217,000	9,328,102	14·5	6	Abolition of purchase in the army
'72....	65,903,000	7,403,737	11·2	4	Surplus revenue and economies in expenditure
'73....	65,353,000	5,641,791	8·6	3	Surplus of revenue
'74....	63,227,000	4,315,132	6·8	2	
'75....	64,462,000	4,041,892	6·2	2	
'76....	65,596,000	5,284,091	8·0	3	Increased army, navy, and civil service expenditure
'77....	66,098,000	5,841,265	8·8	3	
'78....	68,987,000	8,865,491	12·8	5	Bad harvest, and increased expenditure (army, navy, prisons, and education)
'79....	66,949,000	9,194,606	13·7	5	
'80...	68,952,000	10,776,013	15·6	6	Repeal of the malt duty
'81....	70,581,000	10,004,904	14·1	5	
'82...	73,128,000	12,166,477	16·6	6½	Egyptian Expedition
'83....	71,866,000	10,695,046	14·8	5	
'84....	73,796,000	11,922,770	16·1	6	
'85....	74,927,000	15,247,312	20·3	8	Vote of credit, 11,000,000*l.*
	1,902,759,000	250,563,786	13·1	5½	

* Taken from House of Commons Paper No. 240 of 1886.

It will be seen that the percentage of income tax to the net produce of taxation ranges from 20·3 per cent. in 1885, to 6·2 per cent. in 1875. During sixteen years out of the twenty-nine, including the last six, income tax payers have contributed more than their average share to the burdens of the nation, in thirteen years they have contributed less. Now I do not desire to assume that the average share of the past should necessarily be that of the future, although I believe that no less an authority than Mr. Gladstone has in recent years referred to 5*d.* as being, under existing circumstances, the normal rate, which is very nearly the average of 5½*d.* shown in the table; but I cannot resist the conclusion that these constantly recurring and wide fluctuations have either resulted in unduly relieving income tax payers as a class during such periods as 1872-78, or on the other hand that persons within the range of the income tax have borne more than their fair proportion of the expenses of the nation in the years from 1879 to the present time.

Moreover, any arrangement under which in times of low expenditure the income tax yield is much less in proportion to that of other taxes, whilst when expenditure is high the proportion is from two to three times as great, tends to destroy that sense of partnership in the conduct of the business of the nation which surely ought to be felt by all classes, whether above or below the income tax boundary, if that business is to be conducted with due regard to the advantage of the country as a whole.

When however the incidence of the land tax and the income tax on particular classes of property and income is examined, there are found in addition to these periodic fluctuations of burden, serious variations of pressure as between incomes derived from real and personal property, from real property in urban and real property in rural districts, and again as between personal incomes of one class and personal incomes of another.

III.—*The Assessment of Lands and Buildings.*

One of the most important of these variations is that arising from the assessment of "lands, tenements, hereditaments, and "heritages," according to the rack rent or full annual value at which they are worth to be let by the year.

The rules of charge applicable to Schedule A (except in the case of some special properties) take no cognisance of the money profit or net income actually derived or derivable from the lands or buildings assessed, and they ignore the fact that repairs and maintenance, insurance, and possibly law expenses are outgoings absolutely necessary to the preservation and enjoyment of the value of the property charged.

The difference between the gross and net values—not necessarily identical with the gross annual and rateable values of the poor rate—has usually been estimated at 16 per cent., the figure adopted by Mr. Gladstone in his budget speech of 1853. But this difference is obviously much less in the case of "lands" than in that of "messuages and tenements," with the consequence that exceptional pressure of the income tax under Schedule A is greater in urban than in rural districts. The tables which follow will perhaps enable us to measure this exceptional pressure more precisely.

TABLE B.—*Statement showing the Rateable Value Rated for Poor Rates, Gross Value Assessed to Income Tax* (*Schedule A*), *and Estimated Net Value of Lands and Buildings in England and Wales*, 1869-70.

	Rateable Value.	Gross Value Assessed to Income Tax (Schedule A).	Estimated Net Value.	Amount per Cent by which the Gross Value Assessed to Income Tax (Schedule A) exceeds the Rateable Value.	Amount per Cent. by which the Gross Value Assessed to Income Tax (Schedule A) exceeds the Estimated Net Value.
	£	£	£		
Lands*	39,488,882	47,857,174	43,042,881	21·1	11·1
Buildings†	55,078,528	70,949,269	60,035,595	28·8	18·8
Total	94,567,410	118,806,443	103,078,476	25·6	15·2

* Includes farm houses and farm buildings, tithe rent charge, and uncommuted tithes (if any).

† "Buildings," other than those assessed with farms, include houses, shops, warehouses, mills, factories, docks, wharves, &c.

In this Table (B) I have endeavoured to estimate the net value respectively of lands and buildings. It has been necessary in the first instance to take a year so far back as 1869-70, inasmuch as since that date no return has been given of the rateable values of these two classes of property. The rateable values cannot of course be accepted as in themselves evidence of the net value of the properties rated, for the practice of local authorities is very various, low valuations with high rates or high valuations with low rates having an equal effect upon the pockets of the ratepayers. In the assessments to income tax (Schedule A) we have a much more, though I fancy not exactly uniform series of values; but by the results of those assessments we can at least approximately test the sufficiency of the figures of rateable value.

In the three years 1876, 1879, and 1882, for which alone we have any detailed comparison between the values of rated property as estimated for local and imperial taxes, the income tax assessments exceeded the gross estimated rental of the poor rates in England and Wales as follows :—

1876-77	9·03 per cent.
'79-80	8·66 ,,
'82-83	7·20 ,,

Taking the earlier of these figures, 9 per cent., as most accurately representing the diffierence between the real net value of lands and buildings in 1869-70 as compared with the rateable value, and adding this percentage to the rateable value in the first column, the figures given in the third column of the table are obtained, showing the net value in 1869 to be—

	£
Lands	43,042,881
Buildings..	60,035,596

the amount charged to income tax (Schedule A) being 11·1 per cent. and 18·1 per cent. respectively in excess of these totals, or in the aggregate 15·2 per cent.

From the Local Government returns, however, combined with estate accounts which have come before me, I am strongly disposed to infer that the cost of maintenance and repairs have in recent years considerably increased. Tenants appear now to be in a position to be more exacting in such matters than heretofore, and the risk of finding a farm thrown on hand or a house left empty, has induced many a landlord to do work which fifteen years ago he would scarcely even have been asked to undertake. I do not think therefore I shall be wide of the mark if I take 19 per cent. as representing the difference at the present time between the value in the Schedule A assessments and the net annual value after deducting all necessary outgoings, or say 13 per cent. in the case of lands, and 21 per cent. in the case of buildings. Upon this assumption I have constructed the following table :—

Table C.—*Statement showing the Gross Value Assessed to Income Tax (Schedule A), the Deductions allowed from Assessments, the Net Amount Chargeable to Income Tax (Schedule A), and the Estimated Net Value of Lands and Buildings in England and Wales*, 1882-83.

	Gross Value Assessed to Income Tax (Schedule A).	Deductions allowed from Assessments.	Net Amount Chargeable to Income Tax (Schedule A).	Estimated Net Value.	Difference between Amount Chargeable to Income Tax (Schedule A) and Estimated Net Value.
	£	£	£	£	£
Lands	48,658,708	749,545	47,909,163	42,333,075	5,576,088
Buildings	109,374,253	579,425	108,794,828	86,405,659	22,389,169
Total	158,032,961	1,328,970	156,703,991	128,738,734	27,965,257

It will be observed that credit has had to be given for certain small deductions which the law allows in charging property to income tax (Schedule A), and which are classified in the reports of the Commissioners of Inland Revenue under the heads of land tax, sea walls, &c., ecclesiastical deductions, repairs of churches, parochial rates on rent charges for tithes, and "other deductions." I have given the whole of the allowances for "sea walls, &c.," and "parochial rates on tithe rent charges," to the credit of lands, dividing the remainder to buildings and lands in the proportion of three to one, which I expect is not far from correct. In any case the figure obtained is unimportant, although it ought not to be lost sight of.

The result is to show that in the case of lands there is exceptional pressure of income tax to the extent of 5,576,088*l.*, or 13·1 per cent. of their estimated net value; whilst in the case of buildings this special burden is no less than 22,389,169*l.*, or 25·9 per cent. above their estimated value.

What this really implies the following table will readily show:—

TABLE D.—*Statement showing the Amount of Tax Chargeable respectively on the Gross Values Assessed, and Estimated Net Values of Lands and Buildings respectively, with the Excess of Charge and the Rate in the £ of the Estimated Net Value of the Tax Chargeable.*

	Amount of Tax Charged at 8*d.* in the £.	Amount Chargeable on Estimated Net Value.	Excess.	Rate in the £ of the Estimated Net Value of the Tax Charged.	Percentage above the Statutory Rate of 8*d.* in the £.
	£	£	£	*d.*	
Lands	1,596,972	1,411,102	185,870	9	12·5
Buildings ...	3,626,494	2,880,188	746,306	10½	31·2
Total	5,223,466	4,291,290	932,176	9¾	21·8

It is much to be regretted that there are no means of pursuing this inquiry further, and of ascertaining the relative pressure of income tax not only upon lands in the inland revenue sense of the expression as stated above, and buildings, but also upon lands upon which buildings have been erected, and the value of which is, for the purpose of taxation, merged in those buildings. For such an inquiry however no data are, so far as I am aware, available, but it may be observed that wherever the ownership of buildings is separated even temporarily from the ownership of the land upon which they are built, the whole of the additional burden above referred to falls upon the owner or holder of the buildings, the landowner paying only the bare rate of income tax upon the rent he reserves.

Possibly the serious inequality thus *primâ facie* shown is neutralised, if indeed not dissipated, in some one of those subtle ways by which taxation is distributed amongst the whole of the body politic. But while the inequality even appears to exist, it will be a source of irritation and dissatisfaction to many, and it is worthy of serious consideration whether on that account alone it should be unending.

In the Bill so frequently introduced by the Rt. Hon. J. G. Hubbard, whose labours in connection with the income tax, both as a practical administrator and a statistician and economist are not too widely known, the following scale of allowances in estimating the value of lands and buildings has been proposed. It is perhaps too elaborate to be supported by any available general statistics, but it may be quoted here as an expression of well considered opinion as to the varying degree of the inequality of which the present construction of Schedule A is the cause:—

Deductions proposed to be Allowed from the Gross Value in order to obtain the Rateable Value for Taxation.

	Per Cent.
1. Land without buildings	5
2 ,, with buildings (farms)	10
3. Houses and buildings of 40*l.* and upwards gross value	16⅔
4. Buildings without land of 40*l.* and upwards gross value	16⅔
5. ,, above 20*l.* and under 40*l.* gross value	20
6. Houses and buildings without land above 20*l.* and under 40*l.* gross value	20
7. Houses and buildings without land of under 20*l.* gross value	25
8. Mills and manufactories	33⅓
9. The deductions on any hereditaments not included above to be determined according to the circumstance of the class and case.	

IV.—*The Land Tax.*

I should have been glad in the remarks which follow, to have continued my inquiry on exactly similar lines as before, and to have endeavoured to show the precise variation of the pressure of the land tax as between lands and buildings, but there are absolutely no statistics available for the purpose. I am constrained therefore to select the county as the basis of investigation, and by showing the difference of burden as between rural and urban districts, to enable my hearers to draw what I believe will be a perfectly sound inference as to the relative pressure of these two taxes on agricultural and other property.

It is however desirable that I should in the first place offer the following brief outline of the circumstances which have caused the land tax to assume its present shape.

Under the Commonwealth some approach to equality of taxation was effected by the introduction of a system of "monthly assess-"ments," under which certain sums were fixed as representing the contributions to be paid by each county and town, and then apportioned amongst the rateable inhabitants by their local authorities. Practically this system is identical with the *contribution foncière* and *contribution personnelle et mobilière*, which are such important features of the direct taxation of France at the present day. Various endeavours were made to substitute a rate for these fixed contributions, the statesmen of the seventeenth century appearing to have had the same objection to inelastic taxes as some of their successors in modern times, but their efforts were quite unsuccessful, and were finally abandoned in 1697. In that year it was enacted by Parliament that a 3*s.* rate should always produce 1,484,015*l.*, the quota payable towards this sum by each county and town being also fixed. These quotas were to be raised, "First, by a rate of 3*s.* in the £ on an assumed income from "goods, merchandise, and personal property (calculating these at "their value, and assuming every 100*l.* of value to represent an "income of 6*l.*), and on income from offices and employments; "the residue of the sum, by a pound rate, on the annual value of houses, land, and real property."[4]

This system continued in force down to 1798, the grants varying from 500,000*l.* to 2 million £ annually; but long prior to that year, that which was "in fact a property tax and income tax," had become a tax upon one class of property alone—land, messuages, and tenements. In the words of Mr. Dowell, "it "happened that as the tradesmen and others assessed in respect "of their personalty died off, or departed from the particular "district the assessors charged their quota upon the land, adding "it to the previous charge upon the landowners; so that the tax, "which was intended to rest in the first instance on goods and "offices, the residue only being charged on the land, intended for a "general tax on property, gradually became in effect a tax on "land; and a most unfair one, because originally the division of "the whole sum representing the rate was extremely unequal, and "as the relative riches of the different counties and towns "specifically charged altered, the unfairness increased."

In 1798, the necessities of the nation decided Pitt to make perpetual that which had then become known as the land tax. Even at that date, as we have seen, it was most inequitably distributed, and the burden had shifted to a particular class of property, but by the offer of what were considered favourable terms of redemption and purchase it was thought to lead the way to its eventual cessation.

These expectations were doomed to disappointment. So long as consols were low, and the attractions of other investments not very great, Mr. Pitt's proposals were fairly successful; but these conditions soon disappeared, and more than one half of the tax still remains a burden, although, it will doubtless be said, an hereditary burden on those lands the value of which has remained stationary, or has but little increased since the Act of 1798.

V.—*The Land Tax and Income Tax in Agricultural and Industrial Counties.*

In the following table I have given credit for the amount of tax redeemed as well as for that still remaining to be paid, as affording the present and broadest basis for the comparison which I have endeavoured to draw.

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[4] Dowell's "History of Taxation," vol. ii, p. 51.

Table E.—*Statement of the Gross Value of Property Assessed to Income Tax (Schedule A) in each County, in Order of Proportion of Agricultural Population, with the Percentage Difference between the Gross Estimated Rental and Rateable Value of the Poor Rate, the Estimated Net Value of Property Assessed to Income Tax (Schedule A), the Amount of Income Tax Charged at* 8*d. in the £, the Amount of Land Tax (including Tax Redeemed), the Total Taxation under the two previous Heads, and the Rate in the £ on the Net Value of Property.*

Counties in Order of Proportion of Agricultural Population.	England and Wales.						In the £.	
	Value of Property in Income Tax (Schedule A) Assessments, 1882-83.	Difference per Cent. between Gross Estimated Rental and Rateable Value.	Estimated Net Value of Property in Income Tax Assessments.	Approximate Amount of Income Tax charged at 8*d*.	Amount of Land Tax Charged (including Redeemed).	Total.		
	In 1,000's of £'s. 000's omitted.		In 1,000's of £'s. 000's omitted.	£	£	£	*s.*	*d.*
Huntingdon	450,	11·89	396,	15,000	15,498	30,498	1	6½
Rutland	190,	12·69	166,	6,333	5,525	11,858	1	5
Cambridge	1,396,	15·63	1,177,	46,533	32,694	79,227	1	4
Hereford	997,	14·58	852,	33,233	20,410	53,643	1	3
Lincoln	3,901,	16·27	3,266,	130,033	71,907	201,940	1	2¾
Suffolk	2,157,	15·11	1,831,	71,909	73,505	145,405	1	7
Norfolk	2,928,	15·94	2,461,	97,600	84,307	181,907	1	5½
Wilts	1,680,	17·81	1,381,	56,000	51,658	107,658	1	6½
Oxford	1,279,	17·99	1,049,	42,633	38,722	81,355	1	6½
Dorset	1,252,	16·54	1,045,	41,733	33,080	74,813	1	5
Bedford	866,	18·19	708,	28,866	28,555	57,421	1	7¼
Westmoreland	530,	13·15	460,	17,666	3,045	20,711	–	10¾
Bucks	1,195,	16·69	996,	39,833	47,143	86,976	1	8¾
Shropshire	1,693,	11·43	1,499,	56,433	29,057	85,490	1	1½
Berks	1,422,	19·64	1,143,	47,400	40,844	88,241	1	6½
Hertford	1,280,	12·84	1,116,	42,666	42,283	84,949	1	6¼
Cornwall	1,439,	16·11	1,207,	47,966	31,943	79,909	1	3¾
Northampton	1,725,	18·48	1,406,	57,500	47,669	105,169	1	5¾
Somerset	3,653,	16·24	3,060,	121,766	72,473	194,239	1	3
Essex	3,569,	17·53	2,943,	118,966	89,397	208,363	–	10
Sussex	3,752,	24·02	2,851,	125,066	60,047	185,113	1	3½
Devonshire	3,620,	19·13	2,927,	120,666	82,583	203,249	1	4½
Kent (extra-met.)...	4,853,	24·32	3,673,	161,766	77,841	239,607	1	3½
Cumberland	1,451,	16·07	1,218,	48,366	3,714	52,080	–	10¼
Hampshire	3,357,	20·18	2,680,	111,900	54,941	166,841	1	2¾
Yorkshire	15,065,	18·99	12.204,	502,166	91,494	593,660	–	11½
Leicester	1,990,	24·79	1,497,	66,333	34,686	101,019	1	4
Worcester	2,011,	16·64	1,676,	67,033	33,582	100,615	1	2¼
Gloucester	2,954,	16·30	2,472,	98,466	47,312	145,778	1	2
Surrey (extra-met.)	3,334,	21·80	2,607,	111,133	37,838	148,971	1	1½
Northumberland	2,498,	11·80	2,203,	83,266	14,549	97,815	–	10½
Cheshire	3,533,	14·42	3,024,	117,766	28,599	146,365	–	11½
Nottingham	2,154,	18·20	1,762,	71,800	27,277	99,077	1	1¼
Monmouth	844,	17·72	694,	28,133	9,812	37,945	1	1
Derby	2,212,	19·30	1,785,	73,733	24,094	97,827	1	1
Warwick	4,029,	20·81	3,191,	134,300	39,790	174,090	1	1
Middlesex (ex-met.)	2,637,	16·27	2,208,	87,900	37,821	125,721	1	1½
Staffordshire	4,138,	20·95	3,271,	137,933	27,121	165,054	1	–
Durham	3,055,	21·48	2,399,	101,833	10,598	112,431	–	11¾
Lancashire	18,246,	19·68	14,655,	608,200	20,990	629,190	–	10¼
London	32,035,	21·49	25,151,	1,067,833	321,333	1,389,166	1	1¼
Total England	151,370,	19·29	122,170,	5,045,666	1,945,737	6,991,403	1	1½

TABLE E.—*Statement of the Gross Value of Property Assessed to Income Tax—Contd.*

Counties in Order of Proportion of Agricultural Population.	England and Wales.						In the £.	
	Value of Property in Income Tax (Schedule A) Assessments, 1882-83.	Difference per Cent. between Gross Estimated Rental and Rateable Value.	Estimated Net Value of Property in Income Tax Assessments.	Approximate Amount of Income Tax charged at 8*d*.	Amount of Land Tax Charged (including Redeemed).	Total.		
	In 1,000's of £'s. 000's omitted.		In 1,000's of £'s. 000's omitted.	£	£	£	*s.*	*d.*
adnor	202,	14·16	173,	6,733	2,692	9,425	1	1
ontgomery	423,	13·10	368,	14,100	5,853	19,953	1	1
rdigan	309,	25·09	231,	10,300	1,373	11,673	1	–
nglesey	259,	18·95	210,	8,633	1,633	10,266	–	11½
ecknock	299,	14·44	256,	9,966	3,052	13,018	1	–
erioneth	231,	22·01	180,	7,700	2,433	10,133	1	1½
mbroke	497,	14·55	425,	16,566	3,172	19,738	–	11
rmarthen	589,	16·05	494,	19,633	4,370	24,003	–	11½
enbigh	584,	14·17	501,	19,466	6,800	26,266	–	10¾
rnarvon	477,	27·57	345,	15,900	2,337	18,237	1	–½
int	408,	12·25	358,	13,600	2,315	15,915	–	10½
lamorgan	1,786,	16·45	1,492,	59,533	7,906	67,439	–	9
tal Wales	6,064,	16·59	5,058,	202,133	43,936	246,069	–	11½
tal England and Wales	157,434,	19·19	127,232,	5,247,800	1,989,673	7,237,473	1	1½

In this table the counties have been arranged according to the proportion of their agricultural population to the total population of the county as shown by the last census returns, and it will at once be remarked that the combined rate in the £ of land tax and income tax (Schedule A) is great in the counties where this proportion is high, and low where the agricultural element is comparatively small.

We notice an important exception to this rule in the case of the remote counties of Westmoreland, Cumberland, Northumberland, and in Wales, where the quotas of land tax are very small, but omitting these, we find that the pressure of the taxes named very closely follows the distribution of the population. Essex with a total burden of 10*d*. in the £ on the net value, appears at first sight to constitute another important exception; but it is to be remembered that this county includes urban property of great value, although as regards population it stands somewhat high in its agricultural character.

If I may be allowed to follow the classification adopted by Major Craigie, in the paper read at our last meeting, it would appear that in the counties where at least 60 per cent. of the population is rural, the land tax and income tax (Schedule A) are equivalent to a burden ranging from 1*s*. 1½*d*. in the £ in Shropshire, to no less than 1*s.* $8\frac{3}{4}$*d.* in Bucks; whilst in counties where less than 60 per cent. of the population is rural, the burden varies from $10\frac{1}{4}$*d.* in Lancashire, to 1*s.* $4\frac{1}{2}$*d.* in Devonshire. In the latter division, however, a similar rule prevails, viz., that the counties highest on the list are those where land is more usually devoted to purposes of husbandry in some form or another, *e.g.*, Devonshire, Leicester, Sussex, or Kent (extra-metropolitan), whilst in Yorkshire, Lancashire, Cheshire, and Durham, which contain our great seats of industrial enterprise, real property is much less heavily taxed. London with a burden of 1*s.* $1\frac{1}{4}$*d.* in the £ takes a better place than I was prepared to expect, although this rate is of course low compared with such figures as 1*s.* $6\frac{1}{2}$*d.* in the case of Huntingdon, 1*s.* 7*d.* for Suffolk, 1*s.* $7\frac{1}{4}$*d.* for Bedford, and 1*s.* $8\frac{3}{4}$*d.* for Buckingham.

The reason of these discrepancies, so wide that property in one county is assessed to these taxes at a rate 100 per cent. higher than that in another, is of course not far to seek. Pitt's semi-abortive proposals of 1798 had as their basis a distribution of value which, as I have said, was even then not a just one, and the inequalities of which have been trebled by the enormous changes which have taken place since that time by reason of our industrial development. Had his scheme of redemption succeeded, the unequal taxation which he rendered permanent would not long have been suffered, but events prevented the realisation of his idea of the cessation of the old property and income tax, and the institution of a new one, and the inequality of burden remained.

If I may here somewhat depart from the line indicated by the old motto of the Society, "*Aliis Exterendum*," I should like to observe that I am far from thinking that the simple fact that land and buildings in England and Wales bear an average annual burden of 1*s.* $1\frac{1}{2}$*d.*, whilst an income from consols for example is charged 8*d.* in the £ only, is in itself evidence that the former is unduly and unjustly taxed. On the contrary I believe that the ordinary rule of nations, under which land is regarded as an appropriate subject of a special charge, is founded upon considerations sound in themselves, and perfectly equitable to all. But what the table does seem to me to suggest is that as yet we have failed to apportion our annual taxes on property and income on any principle, or with any degree of equality. The landholder, the householder, and the leaseholder, all bear burdens varying not only as between themselves, but also according to the locality in which the property in which they are interested is situate; whilst all, with perhaps one important exception, are charged at a rate in excess of that paid by the owner of income-yielding personal property. Few I think will doubt that these inequalities are deserving of serious consideration, at a time when the value of purely agricultural land has fallen so considerably, and when the urban occupier finds it increasingly difficult to meet his accustomed expenditure.

VI.—*The Assessment of the Profits of Occupiers of Land.*

I may now approach the consideration of the second class of income specifically referred to in the schedules of the Income Tax Act, that arising from the occupation as distinguished from the ownership of land. No part of that Act has been more frequently misunderstood than Schedule B, and no part, I may add, stands in more need of inquiry and reform.

The assumption of the law[5] is that the profits of an occupier of land in England and Wales (with the exception of nurseries and market gardens) will, taking one year with another, be seven-eighths of one-half of the annual rent at which the land is worth to be let under ordinary conditions of tenancy. For convenience the charge is made on such annual rent at seven-eighths of one-half the rate of income tax in force for the time being. The result is of course the same.

The following table shows the wide difference between the nominal amount charged, and the profits assumed by law to be made:—

TABLE F.—*Statement showing the Nominal Amount Chargeable to Income Tax (Schedule B), and the Profits assumed by Law to arise from the Occupation of Lands in England and Wales, in each Year ended 5th April, from* 1876 *to* 1885. *The amounts stated in millions sterling.*

[00,000's omitted.]

Year ended April 5th.	Nominal Amount Chargeable to Income Tax. (Schedule B.)	Profits assumed by Law to arise from the Occupation of Lands.
	In mlns. of £'s	In mlns. of £'s
1876	50,0	21,9
'77	51,6	22,7
'78	51,5	22,7
'79	51,5	22,6
'80	51,6	22,7
'81	51,5	22,7
'82	51,1	22,5
'83	48,3	21,2
'84	48,0	21,1
'85	47,8	21,0
Average	50,3	22,1

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[5] 5 and 6 Vict., cap. 35, sec. 63, Schedule (B), No. vii.

To many the figures of Table F may suggest a doubt as to whether the profits assumed for income tax purposes are not less than the amounts actually realised, taking one year with another. Into the merits of a question so difficult of solution it is fortunately unnecessary for me here to refer. When competent authorities differ by some hundreds of millions as to the amount of capital employed by occupiers of lands as distinguished from that appertaining to the owners, it would be unwise in the course of a paper such as this, to attempt to frame any estimate of the profits of farming, or to express any opinion, one way or the other, as to whether those profits are fairly charged. To me it is doubtful whether the last word on this subject will have been spoken, until occupiers of land assent to the plan suggested by Sir Algernon West[6] as a remedy for the objections they feel to the present arrangement, viz., that they should be charged like other people under Schedule D, acquiring at the same time the privileges conferred by that schedule upon those who are so fortunate as to come within its range.

Before I leave this subject, I ought to call your attention to the fact that no inconsiderable portion of land assessed to income tax (Schedule B) is not farmed for profit at all. In strictness, duty under that schedule is to be charged on all properties assessed under the general rules of Schedule A, except dwelling houses distinct from farms, and buildings occupied for trade or professions.

As however in charging the inhabited house duty gardens and pleasure grounds belonging to and occupied with a dwelling house are to be valued with such dwelling house, provided that no more than one acre of such garden and pleasure grounds be so valued, a practice has arisen of making no charge under Schedule B in respect of gardens and pleasure grounds adjoining a house except to the extent that they exceed one acre, or in other words when the charge to inhabited house duty leaves off, the charge to income tax under Schedule B begins. Thus if a suburban residence with two acres of pleasure grounds be the subject of assessment, one acre is included in the charge of inhabited house duty, the other is excluded from that charge and assessed under Schedule B. It would be interesting to measure statistically the effect of this arrangement on the two taxes in question, but I am afraid that no materials are available for the purpose, and I only mention the matter here to guard against the assumption that the figures above given represent even the estimated profits of husbandry in the proper sense of the term.

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[6] First Report of the Royal Commission on the Depression of Trade. Question 759.

VII.—*The Assessment of Government Securities.*

The next Schedule, C, is of small interest, in a purely fiscal aspect, to any one but the Chancellor of the Exchequer. Probably no other sum of 1,400,000*l.* will reach the revenue during the current year 1886-87 with such ease as that collected from the holders of Government stocks assessed according to its rules. The following table, however, may not be valueless in this connection :—

TABLE G.—*Statement showing the Amount of Profits Assessed under Schedule C on Dividends from British, Indian, Colonial, and Foreign Government Stocks, for the Years* 1872, 1876, 1880, *and* 1883.

	1872.	1876.	1880.	1883.
British	21,160,480	20,822,538	20,594,817	20,194,895
Indian	7,025,558	7,033,641	7,314,078	7,152,408
Colonial........................	2,839,776	3,755,106	5,506,779	6,450,746
Foreign	9,341,193	8,315,463	6,430,799	6,782,525
Total	40,367,007	39,926,748	39,846,473	40,580,574

VIII.—*Schedule D.*

It is with the administration of Schedule D that the success of the income tax as a permanent branch of the revenue is most closely bound up, and the statistics relating to it are of the deepest interest. I can but hope to note this evening a few of the points that occur to me. In the first place, it may be observed that it is the only schedule which has increased in proportion to the others, as the following table will readily show :—

TABLE H.—*Statement of the Proportion per Cent. of Duty Charged under each Schedule of the Income Tax, as compared with the Total Amount Charged to Income Tax, in each of the Three Years* 1868, 1876, *and* 1884.

	1868.	1876.	1884.
	Per cent. of duty charged.	Per cent. of duty charged.	Per cent. of duty charged.
Schedule A........	36·1	34·1	34·5
,, B... ...	4·8	3·8	2·7
,, C........	9·4	8·4	7·8
,, D........	43·7	48·5	49·3
,, E........	6·0	5·2	5·7
Total	100·0	100·0	100·0

It becomes therefore increasingly important to examine the details of Schedule D in order to ascertain whether any substantial inequality of incidence exists, which it may be useful to consider.

The schedule is divided into six classes or "cases," viz. :—

1. Trades and manufactures.
2. Professions or employments.
3. Interest of money (not annual) and other uncertain profits.
4. Foreign and colonial securities.
5. Foreign and colonial possessions.
6. All other profits.

The rules of charge differ in each of these "cases," but (except perhaps as regards foreign and colonial securities and possessions, where the assessment is limited to the amount brought into this country) few difficulties present themselves for solution in connection with any other than the first two, viz., trades and manufactures, and professions and employments, as to which it is "alleged that "industrial earnings require, previously to their being charged "with income tax, an abatement in compensation of the exhaustion "of productive power inseparable from labour."[7] Now I am far from admitting the soundness of this proposition, and still more remotely do I consider that practical effect could be given to it in the assessment of the tax, but I may perhaps be allowed to present a few statistics for the use of both the advocates and opponents of the doctrine quoted. Before doing so, it may be observed that to some extent any objection as to the excessive taxation of industrial earnings is met by the allowance of an abatement of tax on life assurance premiums. As a general rule, the prudent man without realised property, and depending for the support of his wife and family on his personal exertions alone, provides against what is rather euphemistically called "the exhaus- "tion of productive power," by setting aside some portion of his earnings for the purposes of assurance, and to this extent an abatement of income tax may, under certain conditions, be obtained.

I do not press this as any exact answer to the objections which so many economists have urged against the present system of charge under Schedule D, but I am at least convinced that any change in the direction they indicate must be accompanied by the repeal of the existing provisions as to the allowance of the sums paid for life assurance premiums.

IX.—*The Profits of Capital and Industry.*

The income assessed under Schedules B, D, and E may be classified as arising respectively from the employment of capital, and from personal exertion and enterprise in the proportions shown in the following table :—

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[7] A Bill to amend the Administration of the Law of Income Tax (House of Commons Bill, No. 149 of 1887).

Table I.—*Statement showing the Estimated Amounts of Assessable Income (Schedules B, D, and E) arising respectively from the Employment of Capital and from Personal Exertion. United Kingdom*, 1883-84.

Source of Income.	Value of Capital Employed.	Interest on Capital.	Industrial Profit.	Total Income Chargeable.
Schedule B.	£	£	£	£
Occupation of land	300,000,000	12,000,000	15,700,000	27,700,000
Schedule D.				
Trades and professions	540,000,000	21,600,009	159,421,000	181,021,000
Quarries	6,391,000	255,640	657,360	913,000
Mines	49,455,000	1,978,200	5,087,000	7,065,200
Ironworks	12,044,000	481,760	2,529,240	3,011,000
Gasworks	97,580,000	3,903,200	976,000	4,879,200
Waterworks	60,180,000	2,407,200	602,000	3,009,200
Canals	67,300,000	2,692,000	673,000	3,365,000
Salt springs, fishings, market tolls	26,340,000	1,053,600	264,000	1,317,600
Other public companies	509,025,000	20,361,000	13,574,000	33,935,000
Foreign and colonial securities	144,990,000	9,666,000	—	9,666,000
Home railways	826,325,000	33,053,000	—	33,053,000
Foreign ,, ...	75,560,000	3,778,000	—	3,778,000
Interest paid out of rates	125,475,000	5,019,000	—	5,019,000
Other profits	26,120,000	1,044,800	261,200	1,306,000
Schedule E.				
Public offices and employments	—	—	37,734,000	37,734,000
Total ....:............	2,866,785,000	119,293,400	237,478,800	356,772,200

I do not of course pretend to very great accuracy of detail in this table, but the results obtained are in the aggregate probably not very wide of the mark. I have taken the figures as to the value of the capital employed from the "Return relating to "Imperial Taxation on Real and Realised Personal Property,"[8] which followed closely the plan adopted by Dr. Giffen in his remarkable paper on "Recent Accumulations of Capital in the "United Kingdom," read before the Society in January, 1878. Interest has been calculated at the rate of 4 per cent., except where the whole income realised is the reward of capital rather than of personal effort and risk. The result is to show that out of a total assessed income of 356,772,200*l.* derived either from labour alone or from labour applied to the use of capital, about one-third, or 119,293,400*l.*, is appropriated as the reward of capital, and about two-thirds, or 237,478,800*l.*, to the remuneration of labour and the recompense of special risks.

X.—*The Effect of Proposals for Reconstruction.*

We are now in a position to estimate the effect of the proposals

[8] House of Commons Paper (No. 345 of 1885).

for the allowance of an abatement in the case of industrial incomes upon the yield and rate of the tax. Assuming, as is proposed by Mr. Hubbard, that an abatement of one-third of the labour gains be allowed, the following would be the result:—

TABLE K.—*Statement showing the Total Amount Chargeable to Income Tax under Schedules B, D, and E, on the assumption that an Abatement of One-third is allowed from the Amount of Industrial Earnings.*

	Interest on Capital.	Two-Thirds of Industrial Earnings.	Total.	Present Amount Chargeable.
	£	£	£	£
Schedule B	12,000,000	10,466,666	22,466,666	27,700,000
,, D	107,293,400	122,696,533	229,989,933	291,338,200
,, E	—	25,156,000	25,156,000	37,734,000
Total	119,293,400	158,319,200	277,612,600	356,772,200

The effect of the allowance of such an abatement would therefore be to reduce the nominal amount assessed by between one-fourth and one-fifth, and leaving out of consideration any increase of charge under other schedules, to render necessary an increase of the tax all round from 8*d.* to 10¼*d.*

I may now present to you two tables of the results of a reconstructed income tax, in both of which the principle of assessing lands and buildings on their net value is adopted, and in the latter of which the principle of allowing an abatement from industrial earnings is also taken into account:—

TABLE L.—*Statement showing Approximate Effect upon each Schedule of the Income Tax, of the Assessment of Property Chargeable under Schedule A upon the basis of Net Value.*

Schedule.	Duty at 8*d.* on Amounts now Assessed.	Duty at 8*d.* on Altered Basis.	Amount Chargeable at 8½*d.* in the £ to give Approximate Present Yield.	Increase or Decrease.
	£	£	£	£
A. Lands	2,137,055	1,928,067	2,048,571	− 88,484
Buildings	4,213,589	3,374,964	3,585,899	−627,690
Other profits	19,896	19,896	21,139	+ 1,243
B. Occupation of lands	923,333	923,333	981,041	+ 57,708
C. Government stocks	1,352,685	1,352,685	1,437,227	+ 84,542
D. Trades, professions, and industries	7,994,073	7,994,073	8,493,702	+499,629
Railways, securities, and interest	1,717,200	1,717,200	1,824,525	+107,325
E. Public offices and employments	1,257,800	1,257,800	1,336,412	+ 78,612
Total	19,615,631	18,568,018	19,728,516	+112,885

TABLE M.—*Statement showing Approximate Effect upon each Schedule of the Income Tax, of the Assessment of Property Chargeable under Schedule A upon the basis of Net Value, and of the allowance of a Deduction of One-third from Industrial Earnings.*

Schedule.	Duty at 8*d.* on Amounts now Assessed.	Duty at 8*d.* on Altered Basis.	Amount to be Charged at $9\frac{3}{4}$*d.* in the £ to give Approximate Present Yield.	Increase or Decrease.
	£	£	£	£
A. Lands	2,137,055	1,928,067	2,349,831	+ 212,776
Buildings	4,213,589	3,374,964	4,113,237	− 100,352
Other profits	19,896	19,896	24,248	+ 4,352
B. Occupation of lands	923,333	748,888	912,707	− 10,626
C. Government stocks	1,352,685	1,352,685	1,648,584	+ 295,899
D. Trades, professions, and industries	7,994,073	5,949,131	7,250,503	− 743,570
Railways, securities, and interest	1,717,200	1,717,200	2,092,837	+ 375,637
E. Public offices	1,257,800	838,533	1,021,962	− 235,838
Total	19,615,631	15,929,364	19,413,909	− 201,722

The result of any approximation to equality of incidence, in so far as buildings and agricultural lands are concerned, is therefore seen to be that incomes of all kinds would be called upon to contribute to the relief of owners of houses and buildings to the extent of 627,690*l.* gross, or rather over 500,000*l.* net, whilst similarly the owners of agricultural lands would obtain relief from the payment of income tax on their necessary outgoings to the extent of 88,484*l.* gross, or about 75,000*l.* net.

If, however, in addition to any change as regards Schedule A, a measure of consideration was given to industrial earnings such as that to which I have referred, the trading, agricultural, and professional classes, together with the owners of houses and buildings, would be relieved from a gross burden of 1,090,386*l.*, or say 900,000*l.* net, to which sum the owners of agricultural land, government stocks, and railway and other securities, would be called upon to contribute.

Of course the tables do not show the whole effect of the alterations which would ensue from such changes as those suggested, and which I have endeavoured to measure. Thus, for example, the burden of the ground landlord, the mortgagee, or the rent-charge owner would be considerably increased, and that of the leaseholder, mortgagor, or owner in fee, diminished, the latter being entitled to deduct the tax at the higher rate which would necessarily be imposed. An illustration may make this clear. A leasehold house, of the gross value of 200*l.*, and net value of 160*l.*, is mortgaged for 2,000*l.* at 4 per cent., and is subject to a ground rent of 10*l.* Under the present system of assessment the tax charged in respect of the house is 6*l.* 13*s.* 4*d.*, which distributes itself thus: the mortgagee pays 2*l.* 13*s.* 4*d.*, the ground landlord 6*s.* 8*d.*, and the leaseholder the balance, or 3*l.* 13*s.* 4*d.* Under the arrangement which Table M illustrates, the house would be charged with a duty of 6*l.* 10*s.*, or only 3*s.* 4*d.* less than before, but the mortgagee would pay 3*l.* 5*s.*, or 11*s.* 8*d.* more, the ground landlord 8*s.* 1½*d.*, or 1*s.* 5½*d.* more, while the leaseholder, on whom the whole burden of maintaining the property ordinarily falls, would obtain relief to the extent of 16*s.* 5½*d.*

Illustrations of this kind might be readily multiplied, but I have perhaps said enough to show that although Tables L and M show the extent to which *classes* of income might be affected, yet that there would be further and considerable variations as between the various descriptions of persons in receipt of income from a common source.

XI.—*The Graduation of the Income Tax.*

There are two other matters, without a reference to which any paper on the subject of taxation would in these days be incomplete. I refer to the possibility of graduation, and to the cost of collection.

A graduated scale of income tax is no new feature in the fiscal history of this country, although hitherto the application of the principle has been confined within very narrow limits.

Thus when the income tax was imposed by Mr. Pitt in 1799, there were various rates of tax for incomes between 60*l.* and 200*l.*, and it was only when the income reached the latter amount that the full rate of 10 per cent. became chargeable. In 1803, when the tax was reimposed by Mr. Addington, a similar principle was adopted, rates varying from 3*d.* to 11*d.* in the pound being levied on incomes from 60*l.* to 150*l.*, and a rate of 1*s.* being charged on incomes of 150*l.* and upwards. In 1806, when important changes in the character of the tax were introduced by Lord Henry Petty, these rates were modified, but the principle was retained of charging varying and increasing rates on small incomes ranging from 50*l.* to 150*l.*

In 1842 Sir Robert Peel abandoned anything of the nature of graduated taxation, an equal rate in the pound being charged on all incomes above 150*l.* But in 1853 Mr. Gladstone again drew a distinction between incomes above and below 150*l.*, charging the latter 5*d.*, and the former 7*d.* in the pound, with total exemption in cases where the income did not amount to 100*l.*

This double rate continued to be imposed in each year from 1853 to 1862, but in 1863 Mr. Gladstone introduced a new method of charging incomes above and below a certain amount at unequal rates, by allowing the abatement or deduction of a fixed sum before calculating the tax. Succeeding chancellors have altered the amount of the abatement and of the incomes from which it is allowed, but the principle introduced in 1863 remains intact.

The allowance of the abatement is equivalent to the acceptance of the following graduated rates, when the full rate of duty is 8*d.*:—

Income.	Rate.	Income.	Rate.
£		£	
150	1·6 of a penny.	300	4·8 of a penny.
200	3·2 ,,	350	5·2 ,,
250	4·1 ,,	400	8·0 ,,

Whether the principle ought to be extended it is not for me here to discuss, but I may perhaps say that the experience of the past makes it perfectly clear that any further graduation can only be effected by following the lines of the system upon which it is at present attained, viz., by the allowance of abatements, and that any attempt to aggregate in all cases the income arising from various sources accruing to each single individual, can only result in the failure which attended a similar method a century ago.

XII.—*The Cost of Collection.*

The cost of collection is much more readily illustrated by statistics, and deserves far more attention than I am able to give to it at the close of a paper which I am afraid has already attained somewhat undue dimensions. Unless there are special reasons why the expenditure in connection with the income tax should have taken a different course than that of the internal revenue as a whole, we should expect to find a fairly steady decrease in the percentage of the cost of collection, as the following table will show:—

TABLE N.—*Statement of the Gross Receipt by the Inland Revenue Department, and the Percentage of Charge of Collection of that Department to the Gross Receipts.*

Year.	Total Actual Gross Receipt by Inland Revenue Department.	Net Charges of Collection by Inland Revenue.	Percentage of Charges of Collection to Actual Gross Receipt.
	£	£	£
1847	32,811,691	1,450,940	4·42
'50	33,363,418	1,357,958	4·07
'55	44,937,552	1,557,466	3·46
'60	44,140,936	1,607,514	3·64
'65	40,806,029	1,548,260	3·79
'69	45,838,054	1,649,953	3·60
'70	40,588,047	1,610,329	3·97
'73	44,703,764	1,649,443	3·68
'74	43,682,283	1,625,277	3·72
'77	45,758,731	1,728,291	3·77
'80	49,817,458	1,830,695	3·67
'81	49,810,246	1,840,146	3·70
'82	52,377,200	1,907,687	3·64
'83	51,267,686	1,881,120	3·67
'84	52,474,991	1,883,770	3·59
'85	54:735,894	1,926,873	3·52

It is somewhat difficult to restrict to one branch of the revenue an inquiry as to the cost of collection, and in the case of the income tax there is the further difficulty arising from the fluctuation of rate, and the fact that certain important items of expenditure recur only periodically. I may however submit the following comparison between the two years 1880 and 1884, in which the conditions present are somewhat parallel. In both the rate of income tax was 6*d.*, following a rate of 5*d.* in the previous year. In neither year were new assessments to income tax (Schedule A, B) and inhabited house duty made either in the metropolis or in the provinces, a work which always entails special and somewhat heavy expenditure, and there are in fact, so far as I am aware, no special circumstances in either which would prevent the conclusions to be drawn from the following table being perfectly sound:—

Year.	Gross Receipt of Income Tax.	Salaries and Allowances (Estimated).	Poundages (Assessors and Collectors, *i.e.*, of Taxes).	Travelling and Removal Expenses.	Pensions and Compensations.	Other Charges.	Total Cost.	Percentage of Cost to Net Produce.
	£	£	£	£	£	£	£	
1880–81	10,957,525	148,300	181,100	15,100	32,600	73,900	451,000	4·12
’80–84	12,192,465	155,400	216,500	13,300	34,200	68,400	488,000	4·00

It is, I venture to think, very satisfactory to find such distinct evidence of economical administration in connection with a tax, which by the testimony of both friends and foes, has certainly not been collected with less efficiency in the later year. A reduction from $9\frac{3}{4}$*d.* to $9\frac{1}{2}$*d.* in the £ may at first sight seem no great diminution of cost, but if it be remembered that many of the charges are fixed by statute at a given rate in the pound, and that an increase of efficiency in the collection of a tax is always attended with greater proportionate expense, the result must be considered even better than it looks. That the limit of economical administration has been reached, few who study the reports of the Commissioners of Inland Revenue will be found to admit. Much of the work now paid for by poundage could and will no doubt eventually be performed at a greatly reduced cost by salaried officers, whilst some relief both to the rates and to the exchequer might be afforded by consolidating the collection of local and imperial taxes where the basis of assessment is identical. In the meantime, however, it is interesting to find that in a time of increasing expenditure in other directions, one of our principal sources of revenue is collected at a lower proportionate cost than before; and thus that it is more perfectly complying with one of the best tests of the merits of any tax, the cost of its ingathering.

XIII.—*Conclusion.*

I have now arrived at the conclusion of the path which I had marked out for myself at the commencement of my paper. I have endeavoured to measure statistically the varying incidence of the income tax on certain classes of property and income, I have suggested that in the case of rural land the burden of the land tax accentuates the exceptional pressure of the income tax; that buildings are especially overweighted, and that this overweight falls on the leaseholders rather than on the ground landlord or mortgagee; and finally, that under any possible rearrangement of the tax, the income derived from realised personal property must fall to be further charged. I have also referred to the problems awaiting solution as to the profits arising from the occupation of land and as to the assessment of industrial earnings.

The inequalities which have been shown to exist may perhaps, by some happy chance, counterbalance each other, or even be reversed if other taxes be brought into the scale, but to my mind so fortuitous a solution of difficulties is very doubtful at any time, and in year after year impossible.

It may indeed be true that taking real property as a whole or personal property as a whole, the burdens borne are at times nearly identical; but satisfactory as this may be, it is, I conceive, essential that a step further should be taken, and that we should ascertain the relative incidence of taxation on the very various classes of property included under these two heads, and on the different interests in those properties. The difficulties of such an inquiry I do not ignore, but I cannot but think that they are not so insuperable as to be in themselves a reason for standing still. The time seems to be peculiarly favourable for its completion. We are approaching an era when the public voice will demand, by improved administration, a material reduction of the national burden, and such a demand necessarily involves the formation of opinion as to the direction in which that reduction should first take place. It is consequently of the highest importance that reliable materials should be placed at the disposal of the many with whom the decision will rest, in order that the inequity may be remedied, and that no interest may be unduly burdened. In the collection and preparation of those materials the Statistical Society has already performed, and will continue to perform, an important public duty, in which, with your permission, I have endeavoured this evening, and to the best of my ability, to assist.

DISCUSSION *on* MR. T. H. ELLIOTT'S PAPER.

THE CHAIRMAN (Sir RAWSON W. RAWSON, K.C.M.G., C.B., a past president) said they were all familiar with complaints against the income tax, but no one had succeeded in satisfactorily explaining the nature of its inequalities, and the injustice inflicted upon particular classes by its incidence. Mr. Elliott, with a perfect knowledge of the facts derived from his official position, had laid before them tables and deductions which would no doubt command the careful attention of all persons in that branch of financial administration. They would all agree that it was very much to be regretted that their President, Mr. Goschen, who was so capable of forming an opinion upon the statements contained in the paper, was not present to occupy the chair. It was to be hoped that the paper would reach him and receive his attention as Chancellor of the Exchequer. It could not be expected to have any influence upon his arrangements this year, but the time would come when those who in one way or another were smarting under the amount of the income tax, or under its unequal incidence, might hope to influence the Chancellor of the Exchequer, and induce him to consider their position, and relieve them from what had been shown in some cases to be an injustice. The heavy duties of his present political position would prevent Mr. Goschen from attending the meetings of the Society for a short time, but there was reason to hope that before the close of the session he would find an opportunity of showing the interest which he had always felt, and which he desired to demonstrate by his personal support, in the Society.

Mr. FREDERICK HENDRIKS submitted to the meeting that it would be a mistake to treat the land tax (as was done in the paper just read) upon the supposition that it could be rightly considered as one of the special burdens on real property. It is really not a tax at all, but an hereditary rent charge. Thirty years ago (in 1857) he had the honour of reading before this Society a paper on the land tax assessments of England and Wales, from 1836 to 1856, with notes upon the political arithmetic of the earlier period of its settlement. The land tax quotas were nothing more than a substitute for the Saxon and Norman hydage, scutage, knightage, tollage, or other statutory contributions, from real and personal property for the defence of the State. They were the commutations into money payments of the more ancient and onerous burdens of feudal personal attendance and service, or of contributions in kind, for the military defence of the country. Landed property was at one time the only source worth collecting the tax from, as the personal property spread over the country before the great modern development of industrial resources, and of income producing investments other than land and buildings, was not in point of fact assessed under the ancient land tax quotas, except in the metropolis and one or two of the larger provincial towns of the England and Wales of old days. This state of things continued down to 1692, the date of the most important assessment to the land tax, as its proportionate quotas of contribution all over the country are still in force, having been made permanent and perpetual, and at the same time redeemable, through Mr. Pitt's legislation in 1798. And when it is kept in mind how vast an acreage of the whole land in England and Wales has changed hands to different owners and families, and mainly by purchase, since the time when, generations ago, the quotas of land tax were practically fixed, it ought at least to be clear to our minds that all sales or devises of land have taken place, for now nearly two centuries, on terms that have allowed for, and taken into consideration, the incidence of this so-called tax as a deduction from the rent. With such an allowance made in the purchase money, or in the case of settled property from the net rent roll that has been expected from generation to generation, we ought no more to look upon it as a tax, in the ordinary meaning of things, than we should in reasoning or legislating upon the Indian land tax payable under the "permanent settlement" prevailing in some parts of Bengal. He had already entered very fully into the analogy which to a certain extent exists between the perpetual quotas of land tax in this country and in India, in a paper read before this Society in 1858, to which he might be permitted to refer. And before concluding his remarks, he would also like to draw attention to Table G of Mr. Elliott's paper, which was all the more gratifying as tending to show that notwithstanding the enormously large imports of food products into England from foreign, colonial, and Indian sources during the eleven years 1872 to 1883, and in which it might be expected that we should have parted with many of the securities and bonds, foreign, colonial, and Indian, which were held in this country, in part payment for those food products imported, it seems, on the contrary, that we held a larger amount in 1883 than we had done in 1872.

Mr. R. RAMSDEN said that as a matter of fact all the feudal charges were abolished in the reign of Charles II, and the land tax was not imposed until the reign of William III. Therefore there was a gap which prevented the land tax being the legitimate descendant of the old feudal dues. At the same time that the land tax was imposed, there was also a tax upon properties of all sorts, but that impost had been judiciously evaded by those who had the property, which shows the wisdom of evading liabilities, lest they be afterwards considered a rent charge. It had been mentioned in the paper that the agricultural capital of the United Kingdom was 300 million pounds. With a due regard to the sources from which that figure was obtained, he should be tempted to put it very much lower, and he thought that 250 million pounds would be quite the outside figure. There had been such a depreciation of the capital, that he did not believe that even so much as *6l.* per acre could be taken as the proper value of capital on cultivated land exclusive of mountain land. One point which could not be made too much of was the enormous charge for repairs to which anybody interested in Schedule A was subjected to. Those repairs had in recent times become very much increased, because while the net income had constantly diminished, the demand for repairs had either been stationary or had increased, so that in times past, while the demand for repairs and cost of collection was perhaps 20 per cent., it was now 30 or 40 per cent. of the net receipts. His impression about Schedule B was that it was not a tax at all upon income, but a tax upon not keeping accounts. He had never heard of anybody who kept accounts and was willing to put them before the Commissioners who could not get out of Schedule B. He had received an account of a gentleman's income and expenditure and taxes upon income, which would to a certain extent serve to show in what proportion the taxes were imposed. The net income of the gentleman he referred to was about 3,300*l.* a-year; of that 140*l.* had been paid away under Schedule A, which gave practically an income tax as if his income were 4,200*l.* a-year. The whole of the excess came under Schedule A, because whereas his net income derived from property under Schedule A, including the rent of his house was 1,126*l.*, of which a good deal must be deducted for repairs and insurance, reducing it to less than 1,000*l.*, 67*l.* 14*s.* was paid in income tax under Schedule A, as if income were 2,030*l.* and not less than 1,000*l.* net. So practically he was paying as if the income tax were 1*s.* 4*d.* in the pound or more, instead of 8*d.* In incomes of that character, partly derived from land and partly from stocks and shares, that which was derived from land paid possibly twice what it ought to pay, which was grossly unfair. The ordinary taxes of the same gentleman, such as land tax, inhabited house duty, licences, and wines and spirits, and so on, came to 208*l.*; then there were stamp duty 10*s.* per cent. on purchase of shares or land, and so on, and succession duty, making a total of 880*l.*, which divided by 30, the number of years in a generation, leaves 29*l.* 6*s.*, which added to 208*l.* make 237*l.*, amounting altogether to about 7·22 per cent. on his income. If there be added to this 100*l.*, being one-thirtieth of the probate duty on such a capital as would produce such an income, say 100,000*l.*, the result would indicate a contribution to taxation of 10 per cent. on net income by an individual deriving 3,300*l.* a-year from mixed sources. These were statistics which were derived from actual facts and ledgers and not from estimates. Some time ago a controversy was started by Mr. Chamberlain that a man with an income of 10,000*l.* a-year paid only 3 or 4 per cent. on his income, whereas a working man paid at the rate of 6 per cent., but it could be shown that something like 10 per cent. was nearer the amount which a man with 3,000*l.*, 6,000*l.*, or 10,000*l.* a-year was likely to pay at least while income tax was so high.

Mr. F. B. Garnett, C.B., said he had not been able to follow Mr. Ramsden's arguments, which appeared to apply rather to the incidence of tax in a particular instance than to the income tax itself. It must be remembered that Schedule B applied to the assumed profit from the occupation of land when it was occupied by the owner as well as by a tenant. The law assumed that a certain profit was made; and if an owner occupied his own land he was in the position of being a tenant to himself, and paid the tax. If the tenant kept proper accounts he would be in a position to get any relief to which he might be entitled on showing that the profits fell below the theoretical proportion which the law had deemed proper to say should be the rate of taxation. His own familiarity with the statistics of the Inland Revenue Department enabled him to say that it was an extremely difficult task to form any just conclusion upon them, and no one could have worked better with the material at his command than Mr. Elliott had done. In regard to the land tax, the question was complicated by the power of redemption which was introduced in 1798, and under which nearly a half of the original land tax had already been redeemed, so that out of 1,900,000*l.* which was the original quota, only about 1,000,000*l.* now remained chargeable. It occurred to him that in Table E no very accurate result could be ascertained as to the present incidence of the charge in respect to landed property, by dealing with the whole original charge instead of taking the proportion remaining unredeemed, and estimating what the rate would be on the present value of the unredeemed property according to the income tax assessments. He was perfectly certain that if cases of individual districts were to be investigated in detail, inequalities would be found very much greater than were shown in the table; and that if it were possible to separate the portion of the original charge which had been redeemed from that which was still payable, and to take into account the greater proportionate increase of value of the property which had been redeemed, the incidence of the tax, if it were considered as a tax, upon the property unredeemed, would be found to be very much heavier than had been attributed to it in the paper. The amount given in the table as the gross value of property in the assessment of Schedule A for 1882 in England and Wales was 157 million £; but this is exclusive of a considerable amount of property, the profits from which are now charged under another schedule, such as quarries, mines, railways, waterworks, salt springs, gasworks, and other concerns liable to land tax. It must be remembered that every railway company before turning the soil redeemed the land tax in order to escape a future increased charge on the improved value, and the railway assessment for income tax now amounts to from 33 to 34 million £ sterling per annum, while there is perhaps 30 million £ more of other property originally subject to land tax, but of which a great portion has been redeemed. The value of such proportion would have to be added to the total assessed to the income tax, Schedule A, in order to arrive at an estimate of the total present value of the property to which the original quota of land tax was applicable. Although the law required that the value of property redeemed and unredeemed should both be entered in the assessments from year to year, this had been studiously disregarded, and where values are entered they are so incorrect as to be of no use. He had seen land tax assessments in which the values of the property assessed were those which might have been correct one hundred years ago. In one instance a property in which he was personally interested was correctly entered at its annual value of 30*l.* a-year, and charged with 2*l.* land tax, while an adjoining property in the same parish on which a house had been built—the house being assessed for the income tax, Schedule A, at 250*l.* a-year—was entered at the value of 5*l.*, with an assessment of a few shillings only for land tax. There was, indeed, no possibility of ascertaining what the real incidence of the land tax was in respect of property redeemed and unredeemed. With regard to Table D, the amount of the income tax stated to be charged at 8*d.* in the pound, namely, 5,223,000*l.*, included a vast amount of income which was in fact exempted. It must be observed that in the statistics derived from the tax assessments, the gross annual value attributed to Schedule A, namely, 157 million £, comprehended all property in the nature of lands and tenements not being railways and other properties charged under Schedule D, and included both exempt and taxable properties; but the charge under Schedules C, D, and E, on the other hand, only comprehended so much as was taxable, and took no account of incomes, which were exempt. When the amounts of Schedule A and Schedule D were put under the same category, they were not comparing similar things, because Schedule A included perhaps some 20 million £ of property upon which no tax was paid, and Schedule D did not include 50 or 60 million £ of incomes below the taxable limit. The same defect occurred in regard to other schedules. Under Schedule C the charge in respect of funded property, or Indian, colonial, and foreign bonds was limited to the dividends from which the tax was deducted. On more than one occasion he had had to consider the effect of Mr. Hubbard's proposals with respect to the assessment of income tax, and one difficulty that he felt in agreeing to the suggestion that the income tax under Schedule A should be taken upon the rateable value, was that no machinery existed for arriving at a rateable value. He sympathised very much with the proposal that if possible they should not tax property in respect of anything beyond the net income; he should be very much inclined to adopt the view that certain deductions should be allowed to cover the expenses of repairs and other outgoings in respect of property, and that the tax should be charged on something equivalent to what is known as the rateable value. The time to do that was when a valuation Bill was passed applicable to the whole country. There would be no difficulty in applying the principle to the metropolis, because there both the gross and rateable values were ascertained according to fixed rules. In his opinion, however, the proper time for introducing any such a change would be when some loss of revenue under Schedule A could be spared, for he objected altogether to the idea of affording such relief to payers of tax under Schedule A at the expense of persons who were liable under other schedules for their incomes in respect of trades or professions, salaries, and other sources. Mr. Elliott had calculated what the additional charge would be on different classes of income, but however those proportions might be liable to modification, he was perfectly satisfied that some would have to pay more in order that others might pay less, and he did not think the public generally would care for such a mode of adjustment. He was afraid that in Table L a too sanguine estimate had been made of the produce of duty at 8*d.* on the amounts now assessed, which was put down in that table as well as in Table M at no less than 19,615,000*l.* He would be sorry to be responsible for assuring the Chancellor of the Exchequer that the assessment of the present year at 8*d.* in the £ would yield any such sum. There was no doubt that the proper way of making any alleviation of the income tax was by a graduated scale as was adopted in Sir Stafford Northcote's budget in 1876. It might however be difficult to know where to draw the line. There seemed no justification in principle for a person with 399*l.* a-year now paying about 4*l.* less duty than a person with 400*l.* a-year; yet such was the effect of the present abatement of 120*l.* ceasing directly 400*l.* was reached. Still a line must be drawn somewhere. It would no doubt be remembered that in 1874 there was a competition by both political parties to get rid of the income tax. Mr. Gladstone, on the one hand, and Mr. Disraeli, on the other, both proposed if they came into power to abolish the income tax. Mr. Gladstone was understood to have been prepared with a scheme which would have enabled the income tax to be dispensed with; but when Mr. Disraeli's Government came into power, attention was directed rather to the best mode of alleviating the pressure of the income tax, which was reduced to its lowest rate of 2*d.* Then also the abatement was extended to 120*l.*, and the limit of exemption was enlarged to incomes under 150*l.* The immediate effect was most remarkable, in removing as it did at once from the operation of the tax about one-third of the entire number of persons who were previously liable. Thus in 1875 600,000 persons were charged under Schedule D for profit on trades and professions, and in the following year there were only 400,000 persons. The same result occurred under Schedule E, as must also have been the case under all the other schedules, though it was not possible to demonstrate the exact numbers. There could be no doubt that this modification did more to render the income tax perpetual, and to prevent the possibility of dispensing with it than any other measure that could have been adopted.

Mr. A. H. Bailey agreed with the author of the paper that a sense of partnership in the conduct of the business of the nation ought to be felt by all classes. Whereas 20 per cent. of the revenue was derived from the income tax, this tax was levied upon a small fraction only of the whole community, and that was undoubtedly a source of danger to the State. There was a great demand for the Government to undertake all sorts of work, but the cost of this should be fairly borne by all; but the number of persons who paid tax under Schedule D was very small, compared with the number who earned income in some way. Mr. Elliott had pointed out several inequalities under Schedule A, but there was one which he had lost sight of. Houses were divisible into freehold and leasehold, and the pressure of taxation was exactly the same on both, whereas the lease might only have a few years to run, while the freehold was in perpetuity. The income derivable from a leasehold house was divided into two parts, principal and interest, that from a freehold consisted of interest only, but the tax made no distinction between the two; a return of the tax on the principal ought to be made. No doubt it was necessary for the purposes of the revenue that the tax should be deducted at its source. When Mr. Pitt first introduced the income tax, a schedule was sent to every man requiring him to make a return of his income from all sources, and the aggregate return was found to fall very short of the estimate. In 1803 the system now in vogue of collecting the tax at its source, whenever practicable, was applied. Schedule B had always been a mystery to him, and he could not understand why a farmer, any more than a manufacturer, should not be asked to make a return of the profits from his trade. Schedule C called for little remark, but Schedule D had exercised the minds of Mr. Hubbard and many other gentlemen. It was a popular delusion that the sums assured in a life assurance society went always to the families of the deceased. In a large proportion of cases they went to creditors, lent on the premiums, which in these cases were in effect instalments of loans, abatements of income tax were allowed. He quite agreed with Mr. Elliott that it was time that abatement was abolished, and some other form of alleviation allowed to tax on incomes derived from personal exertion. Mr. Gladstone had said that it was hopeless to expect to do that, but he (Mr. Bailey) was unable to see why some distinction should not be drawn between incomes derived from property, and those derived from personal exertions.

Major Craigie said the last speaker had raised the question of differentiating between the taxation of incomes from different sources according to the permanence of the sources from which they were derived. The answer usually made in parliament from the treasury bench was that the income tax from its very nature took no cognisance of anything but the income for the year. In return for the protection afforded, the State claimed so many sixpences or eightpences out of every pound of real or assumed income. The moment a man's income ceased the tax ceased. He thought Mr. Elliott, in his very useful paper, had conclusively shown that in the fact of the income tax being in one of its schedules however what it was not in the other four, partly a property tax, there was an injustice of another character done to the owners of real property. Nominally the tax under Schedule A fell upon the rental of land or houses; it really fell upon something which was not income at all, but outgoings, and in the case of land, at this crisis, the disparity between the owner's receipts and the sum he was taxed on was peculiarly great. No doubt it would be argued that after all the income tax was only one of many forms of taxation, and the taxation of the country was adjusted to the backs of the taxpayers as the knapsack was to the back of the soldier, not by one strap but by a great many, and these were distributed in such a way that the whole of the people were supposed to bear their proper shares of the national burden. He (Major Craigie) did not think that this perfect distribution of national taxation had yet been reached. The tendency to which Mr. Elliott had so opportunely called attention, to treat the income tax as the only flexible one, augmented the anomalies of taxation. The income tax was intended no doubt to reach the richer part of the community, but he quite agreed with Mr. Bailey that its facility of imposition had been abused by recent chancellors of the exchequer. Thus the cost of the Egyptian campaign, for example, had been thrown entirely upon the few hundreds of thousands of income tax payers, and the millions of voters responsible for the national outlay paid nothing. It was too not a little dangerous to note, as they could do in a Society like this without any question of party bias, that the statesmen of the day seemed to consist to lay heavier burdens and a larger share of the cost of government actually on the classes whose share in the direction of the national policy was at the same moment being steadily diminished. In dealing with income tax and land tax alone, Mr. Elliott had not taken account of another still heavier set of taxes on property and income. It should always be borne in mind that there was a weighty series of local taxes levied upon houses and land. Some 26 million £ was extracted in England and Wales alone out of lands and houses by means of rates, in addition to the imperial taxation. This vastly overweighted the property which the paper showed to be most burdened for imperial taxes. On another point he thought improvements might be made in the form of our income tax statistics with great advantage. The assessment of rental under Schedule A had been found to be so unjust that the treasury for the last six years had permitted a return of the tax to those owners who had not received a portion of their rents. Then why should the money which was no longer received still appear and be quoted in all statistical statements as forming part of the rental of the United Kingdom? The rents appearing in the assessments were very far in excess of those that reached the pockets of the owners of land. The reductions of late years in the assessment of land rental by no means represented the real shrinkage of rent. He was not quite certain how far they could hope to arrive at any improved method of charging income tax on the net value, such as had been hinted at, until the assessment values were made to correspond more nearly to the actual facts. In Schedule B there was a still greater example of the same statistical error. Ever since 1843 there had been standing in the gross assessment of income tax under this schedule a figure which neither in the theory of law, nor in the intention of parliament represented the income of the person charged on the gross profits from the occupation of land. That error was no doubt in part corrected by a note recently placed in the returns to the effect that the gross assessment was not the farmers' legally assessed income, but something more than twice that amount. Yet no correction was made in totals of the income tax assessment, and repeated errors arose from this mode of statement. The adjustment of farmers' incomes should be made in the assessment, not on the duty. Mr. Elliott's calculations as to the effect of Mr. Hubbard's proposals were useful and interesting. Some years ago he (Major Craigie) had suggested to Mr. Hubbard that the effect of that gentleman's proposed alteration of the law would be that land *per se* would pay 4 per cent. more income tax, tenant farmers under Schedule B 8 per cent. more, owners of personal capital, mortgagees, &c., 20 per cent. more, while industrial occupations, houses, and buildings would pay 20 per cent. less. That calculation was however made when the tax was at its normal level of 5*d.* He had never been able to follow the theory of some economists that the land tax was no tax at all, and should be taken no account of. He held it was impossible to say that because a tax like this had been paid for a very long period, it had ceased to be a tax; such a doctrine would be very convenient to tax imposers, and might very soon with equal justice be applied to the income tax itself. Mr. Elliott was quite right in including the redeemed portion also of the land tax, the cost of redemption being a permanent deduction from income. No doubt they all looked forward to some better adjustment of the incidence of taxation, but he did not agree with one remark of Mr. Elliott's, to the effect that the burdens borne by real and personal property as a whole were at any times nearly identical. They certainly were not so now, and in his opinion there had always been a vastly preponderating burden on real property which the larger reliance on the income tax, and the annual growth of rates, made heavier and more exceptional year by year.

Mr. S. Bourne found a difficulty in comprehending how the large amount of 20 million £ duty at 8*d.* was arrived at in Tables L and M. He regarded most of the land tax as a veritable tax, not a mere rent charge. He himself paid on one property 2*l.* a-year upon property, which, if he could rent it, would only bring in 60*l.* That was in consequence of the builder of the house not having redeemed the freehold before he commenced building operations. Table E showed less than 2 million £ as the collection on lands, the annual value of which was 160 million £, at which average he ought only to pay 15*s.* Neither could he agree with Mr. Hendriks's views about the returns from Indian, colonial, and foreign investments. The money paid for the purchase of food was not paid by those who received the income. Therefore he did not see any relation between the two in the shape of cause and effect. He regarded the tax under Schedule D as utterly wrong in principle. The taxation levied upon property was on the principle that a certain proportion of that which was created became the property of the State which protected the creation of the money; but in the case of the income tax a large proportion of the income on which it was paid was no creation at all; it was rather a charge on the distribution of that which had been created, so that the tax was paid three or four times over by successive recipients of that which came originally from but one source.

Mr. James Leakey believed that in one of the cantons of Switzerland the income tax was graduated from the highest to the lowest. If that could be done in England, both rich and poor would be responsible for the expenses of wars. The graduation of income tax would never be truly humane nor equitable without an important modification in which again Switzerland had already led the way, namely, a reduction of the tax to parents or guardians of young families, the reduction being proportioned to the number of children they support. Education being free in Switzerland, this wise reduction is the more notable and creditable to the country.

Mr. F. H. Janson observed that Mr. Garnett had spoken of the land tax that had been redeemed as necessarily extinguished, which was not quite the fact, inasmuch as a certain proportion of the land tax had been redeemed by strangers to the property charged, the Land Tax Redemption Acts allowing strangers to redeem when the owners declined to exercise their right of redemption—in which case the land is not exonerated. It would be interesting to know what proportion of land tax still payable was held by individuals and was no longer payable to the Government.

The Chairman said it was not to be wondered at that opinions should vary about the important questions treated of in the paper, but he was sure every one present would join in thanking Mr. Elliott for the trouble he had taken, and for the valuable contribution he had made to the records of the Society.

Mr. T. H. Elliott in reply said he had noticed that those who regarded the land tax simply as a rent charge, had always been the most anxious to remove the hereditary privileges of land. If, as had been the case, those privileges were taken away, the least that could be done was to take away the burdens also. He had included the redeemed land tax in his tables because he was anxious to take the fairest possible view of what he could never but consider as a burden on property. No doubt, as Mr. Garnett had pointed out, inequalities in inequalities could be found, but he had endeavoured to deal with broad effects rather than with smaller matters. He did not agree with Mr. Bailey that leasehold and freehold houses should be differently assessed. It was rather a question of apportionment as between the various interests in those houses than a question of the amount contributed in respect of each house to the revenue. As regards the observations of Mr. Leakey, he could only say that he entirely adhered to the opinion he had expressed, "that any attempt to aggregate in all cases the income arising from various sources, but accruing to each individual," would be a failure, and that no system of graduation would be possible under such an arrangement. He added that Tables L and M were not intended, as Mr. Garnett and Mr. Bourne had thought, to show the net produce under each head, but the gross amount chargeable. The net produce would of course vary, not according to the class of property or income possessed, but according to the aggregate amount in the hands of each individual.

The INHABITANTS *of* TOWER HAMLETS (SCHOOL BOARD DIVISION), *their* CONDITION *and* OCCUPATIONS. *By* CHARLES BOOTH, ESQ.

[Read before the Royal Statistical Society, 17th May, 1887.
Dr. T. GRAHAM BALFOUR, F.R.S., a Vice-President, in the Chair.]

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I.—*Object and Method of the Inquiry.*

I HAVE the honour of laying before the Royal Statistical Society the first results of a proposed inquiry into the condition and occupations of the people of London. The facts and figures which follow apply to the district included in the Tower Hamlets School Board Division, and have been mostly obtained from the thirty-four visitors employed by the School Board; to whom, and to the Superintendent, I wish to express my sincere thanks for the courtesy they have shown me, and the unwearying pains with which they have lent themselves to my purpose. I have also to thank the Board itself for the kind permission to make this use of the information in the hands of their visitors.

The general plan of the inquiry, as applying to the whole of London, is to divide the entire population by districts and by groups of trades, each answering to a similar division in the census; and then to deal with each district by a local inquiry, and with each group of trades by a trade inquiry. The principal object of the district inquiry would be to show the conditions under which the people live, but it would also give their employments; the principal object of the trade inquiry would be to show the conditions under which the people work, but it would indirectly deal with their manner of life. The double method would provide a check upon the results of each, and much light be thrown upon the one inquiry by the other.

This very large scheme is more than any man could hope to accomplish by himself; but this is not called for, as much of it is already being done piecemeal, and only needs putting together; and I shall hope to show that very valuable results are within our reach.

The results which might be obtained for the whole of London will be considered more fully at the end of this paper; the present inquiry has been undertaken in order to give a specimen (though, I know, a very imperfect specimen) of a single local inquiry.

In obtaining my information I have preferred to avoid personal investigation, and have rather made it my object to put together that which could be had from those whose life is spent amongst the people they describe. Whilst I have endeavoured to draw information from as many sources as possible, and in this way may hope to have avoided any bias or error of a persistent type, in point of completeness I have fallen far short of what I had hoped for. I feel sure that the required information exists in undeniable shape and has only to be brought together; and I trust that this fuller information may be called out by the publication of the present imperfect paper.

I have had no foregone conclusions, and it is rather to the method here employed, than to the results yet shown, that I pin my faith.

The School Board visitors perform amongst them a house to house visitation; every house in every street is in their books, and details are given of every family with children of school age. They also begin their scheduling two or three years before the children attain school age, and a record remains in their books of children who have left school. Most of the visitors have been working in the same district for several years, and thus have extensive knowledge of the people. It is their business to reschedule for the Board once a year, but intermediate revisions are made in addition, and it appears to be their duty to make themselves acquainted with new comers into their districts. Thus their work keeps them in continual and natural relations with all classes of the people. Other agencies usually seek out some particular class or deal with some particular condition of people. The knowledge so obtained may be more exact, but it is circumscribed, and very apt to produce a distortion of judgment. For this reason I have taken the information to be had from the School Board visitors as the framework of the picture I wish to give of the life and labour of the people.

As to the details of my sketch, beyond such as may be generally visible, or gradually become known to the visitors in the course of their work, it has been their duty to make special and careful inquiries into all cases in which there is any question of the remission of school fees—a duty which enables them to obtain exceptionally good information on questions of employment and earnings, especially as regards the poorer classes.

The population brought directly under schedule, viz., heads of families, and the school children coming under the ken of the School Board visitors, with the proportion of wives and other children, all partly or wholly dependent on these heads of families, and sharing their life, consists of from half to two-thirds of the whole population. The rest have been scheduled by other means, or in proportion, as will be shown later on.

II.—*Table of Sections and Classes.*

In the table that immediately follows, the whole population of Tower Hamlets, over 450,000 people, is divided into about forty sections, according to the character of the employment of the heads of families; a re-division is then made by apportioning the people in each section among eight classes, according to means and position.

This double method has been forced upon me by the fact that no possible classification by employment will serve also to divide the people according to means; and, in effect, it will be found that most sections contribute to more than one class, and each class is made up of many sections.

It will be seen that the two classifications converge on the six divisions of ordinary labour, these divisions having been made to match the first six classes.

The grouping of the sections into classes was facilitated by noting the proportion of *poor* and *very poor* in each section.

By the word "poor" I mean to describe those who have a fairly regular though bare income, such as 18*s*. to 21*s*. per week for a moderate family, and by "very poor" those who fall below this standard, whether from chronic irregularity of work, sickness, or a large number of young children. I do not here introduce any moral question: whatever the cause, those whose means prove to be barely sufficient, or quite insufficient, for decent independent life, are counted as "poor" or "very poor" respectively; and as it is not always possible to ascertain the exact income, the classification is also based on the general appearance of the home. Cases of large earnings spent in drink are intended to be excluded, as not properly belonging to the poor, but the results of ordinary habits of extravagance in drink in inducing poverty are not considered any more than those of other forms of want of thrift.

These definitions connect themselves closely with the sections of labour: Nos. 1 and 2 being all considered "very poor;" No. 4 representing exactly the definition of "poor;" while No. 3 (irregular labour) contains both poor and very poor; and No. 5 is almost entirely above the line of poverty. This will be seen more clearly when I describe the sections.

III.—*Description of the Eight Classes.*

A. *The Lowest Class*—Consists of some (so-called) labourers, loafers, semi-criminals, a proportion of the street sellers, street performers, and others. To these ought to be added the homeless outcasts of the streets, and also those among the population who conceal criminal pursuits under a nominal trade. It is, of course, impossible to enumerate the latter, and the former may be supposed to slip, to some extent, through the most careful census; they are those who take shelter where they can, and my figures, which work up to the census total, may not fully provide for them. It is also difficult to draw the line between Sections No. 1 and No. 2, and although the figures given are based, in addition to the information obtained from the School Board visitors, on a careful analysis of the inmates of lodging houses and of the occupants of the lowest kinds of streets, it is very possible that either section contain some who more properly belong to the other.

The indoor paupers, and other inmates of institutions, are not included in my schedules. The semi-pauper class, who are in and out of the house, are to be found in Class B. The total counted in Class A are 6,882 or $1\frac{1}{2}$ per cent. of the population.

B. *Casual Earnings*—Is based upon Section 2, but draws also from many other sections in which the very poor are found.

These people, *as a class*, are shiftless, hand-to-mouth, pleasure loving, and always poor; to work when they like and play when they like is their ideal. Many circumstances constrain men to this life, or prevent them from leaving it when once adopted; but the life has its attractions in spite of its hardships.

While there is also much enforced idleness amongst artisans, and amongst the irregularly employed labourers of Section No. 3, it is these men of strictly casual earnings who are essentially the "leisure class" amongst the poor—leisure bounded very closely by the pressure of want. They cannot stand the regularity and dulness of civilised existence, and find the excitement they need in the life of the streets, or at home as spectators of, or participators in, some highly coloured domestic scene. There is drunkenness amongst them, more among the women than the men, I am told; but drink is not their special luxury as with the lowest class, nor is it their passion as with a portion of those with higher wages and irregular but severe work. Class B counts, according to my schedules, to the very large total of 51,860, or over 11 per cent. of the whole people of the district.

Table of Sections

Divided into Sections according to Character of Employment of Heads of Families.

Section.	Description.	Heads of Families.	More or less Dependent.			Unmarried Men over 20.	Total.	Percentage
			Wives.	Children —15.	Young Persons. 15—20.			
Married Men.								
Labour.... 1	Lowest class, loafers, &c.	1,470	1,455	497	893	1,517	5,832	1·28
2	Casual day-to-day labour....	6,190	6,124	11,400	2,746	3,652	30,112	6·59
3	Irregular labour	2,729	2,706	5,183	1,264	1,205	13,087	2·86
4	Regular work, low pay.......	4,961	4,900	9,144	2,169	2,075	23,249	5·09
5	,, ordinary pay	10,612	10,523	20,512	5,043	4,639	51,329	11·24
6	Foremen and responsible work	2,889	2,864	5,705	1,354	1,220	14,032	3·07
Artisans 7	Building trades.............	4,871	4,818	9,775	2,319	2,008	23,791	5·21
8	Furniture, wood work, &c.	4,501	4,456	9,193	2,211	1,901	22,262	4·87
9	Machinery and metals	4,855	4,796	9,634	2,266	1,984	23,535	5·15
10	Sundry artisans	4,028	3,990	7,757	1,905	1,761	19,441	4·26
11	Dress	5,753	5,687	11,265	2,962	2,860	28,527	6·24
12	Food preparation	3,123	3,103	6,190	1,593	1,467	15,476	3·39
Locomo- 13	Railway service.............	1,176	1,159	2,360	555	483	5,733	1·26
tion 14	Road service	957	951	1,885	464	414	4,671	1·02
Assistants 15	Shops and refreshment houses	2,017	2,000	3,861	944	862	9,684	2·12
Other 16	Police, soldiers, and sub-officials	1,519	1,504	2,992	730	654	7,399	1·62
wages 17	Seamen	2,288	2,261	3,901	917	938	10,305	2·25
18	Other wage earners	1,111	1,100	1,720	419	461	4,811	1·05
Manufac- 19	Home industries, not employing	1,290	1,280	2,611	656	577	6,414	1·41
ture, &c. 20	Small employers	2,147	2,128	4,849	1,254	1,017	11,395	2·49
21	Large ,, ...	353	351	698	176	163	1,741	0·38
Dealers.... 22	Street sellers, &c.	1,354	1,339	2,695	700	817	6,905	1·51
23	General dealers.............	1,452	1,442	2,946	773	700	7,313	1·60
24	Small shops	3,164	3,133	5,677	1,415	1,421	14,810	3·24
25	Large shops, employing assistants	1,772	1,758	3,575	894	798	8,797	1·93
Refresh- 26	Coffee and boarding houses	437	429	809	201	203	2,079	0·46
ment 27	Licensed houses	902	895	1,618	403	412	4,230	0·93
Salaried, 28	Clerks and agents..........	3,519	3,485	6,773	1,639	1,474	16,890	3·70
&c. 29	Subordinate professional....	1,213	1,200	2,386	575	503	5,877	1·29
30	Professional	491	487	1,001	242	206	2,427	0·53
No work 31	Ill and no occupation	373	368	714	178	169	1,802	0·39
32	Independent	278	276	388	92	115	1,149	0·25
Total of	male heads of families	(83,795)						
Females.								
33	Semi-domestic employment	2,733	—	4,308	1,058	—	8,099	1·77
34	Dress	1,364	—	2,147	536	—	4,047	0·88
35	Small trades	875	—	1,461	363	—	2,699	0·59
36	Employing and professional	178	—	301	74	—	553	0·12
37	Supported	607	—	914	228	—	1,749	0·38
38	Independent	337	—	460	114	—	911	0·20
Total of	female heads of families	(6,094)						
39	Other adult women	—	—	—	—	—	33,714	7·38
	Total population	89,889	82,968	169,305	42,325	38,676	456,877	— 100·00

Note.—The figures in this, and in all other tables in this paper, *and Classes.*

Divided into Classes according to Means and Position of Heads of Families.

Section.	A. Lowest Class.	B. Casual and Very Poor.	C. Irregular Poor.	D. Regular Minimum.	E. Regular Ordinary.	F. Highly Paid Labour.	G. Lower Middle.	H. Upper Middle.	Total.
1	5,832	—	—	—	—	—	—	—	5,832
2	—	30,112	—	—	—	—	—	—	30,112
3	—	2,686	9,030	—	1,371	—	—	—	13,087
4	—	—	—	23.249	—	—	—	—	23,249
5	—	296	—	9,432	41,601	—	—	—	51,329
6	—	—	—	—	—	14.032	—	—	14,032
7	—	1,730	1,921	3,506	15,014	1,620	—	—	23,791
8	—	1,486	1,423	3,404	14,419	1,530	—	—	22,262
9	—	811	1,088	2,425	17,077	2,134	—	—	23,535
10	—	644	1,636	1,635	9,095	6,431	—	—	19,441
11	—	1,856	3,911	6,394	14,490	1,876	—	—	28,527
12	—	401	554	2,296	12,225	—	—	—	15,476
13	—	84	—	238	2,674	2,737	—	—	5,733
14	—	215	—	1,261	3,195	—	—	—	4,671
15	—	249	—	840	8,595	—	—	—	9,684
16	—	197	—	630	6,572	—	—	—	7,399
17	—	277	791	—	9,237	—	—	—	10,305
18	—	124	195	197	3,799	496	—	—	4,811
19	—	424	1,578	—	4,412	—	—	—	6,414
20	—	—	—	317	2,121	5,704	2,724	529	11,395
21	—	—	—	—	—	—	871	870	1,741
22	522	524	2,356	741	2,762	—	—	—	6,905
23	—	186	1,238	—	4,980	—	909	—	7,313
24	—	112	76	1,098	7,850	4,068	1,606	—	14,810
25	—	—	—	—	—	895	4,398	3,504	8,797
26	—	—	—	17	221	699	1,142	—	2,079
27	—	—	—	5	103	643	2,298	1,181	4,230
28	—	162	407	1,283	6,478	5,320	2,522	718	16,890
29	—	—	—	—	—	—	5,877	—	5,877
30	—	—	—	—	—	—	—	2,427	2,427
31	—	716	931	155	—	—	—	—	1,802
32	—	—	—	—	—	—	1,149	—	1,149
33	—	2,825	3,814	—	1,460	—	—	—	8,099
34	—	1,095	—	2,109	843	—	—	—	4,047
35	—	680	523	526	970	—	—	—	2,699
36	—	—	—	—	—	—	553	—	553
37	—	240	—	346	1,163	—	—	—	1,749
38	—	—	—	—	—	—	911	—	911
39	528	3,728	2,464	5,116	15,298	3,831	2,005	744	33,714
Total	6,882	51,860	33,936	67,220	208,025	52.016	26,965	9,973	456,877
Per cnt.	1·51	11·35	7·43	14·71	45·53	11·39	5·90	2·18	100·00

are only to be taken as approximately correct. [See Appendix.]

C. *Intermittent Earnings.*—This is a pitiable class, consisting largely of struggling, suffering, helpless people. They are, more than any others, the victims of competition, and on them falls with particular severity the weight of recurrent depressions of trade. In this class are counted most of the labourers in Section 3, together with a large contingent from the poorer artisans, street sellers, and the smaller shops. Here may perhaps be found the most proper field for systematic charitable assistance; but it is very necessary to insist (as the Charity Organisation Society untiringly does) on some evidence of thrift as a precondition or consequence of assistance, otherwise what is given will assuredly increase the evil it attempts to relieve. Class C counts up to 33,936 or 7½ per cent. of the population.

D. *Small Regular Earnings.*—Together with the whole of Section 4 are here counted the "poor" out of Section 5, most of the home industries, and a contingent from the poorer artisans, small shops, &c. No class deserves greater sympathy than this one; its members live hard lives very patiently, and are schooled by their lot in the virtues on which their existence depends. The hope of improved condition for each individual of this class lies only in their children, who, as they grow up and begin to earn money, make life easier for the parents. For the class as a whole the probability of improvement is very remote, consisting chiefly in statistical assurances, which are probably true, that poverty stricken as their life still is, its conditions have greatly altered for the better within the memory of man, and are still improving. If Class C is the proper field for systematic charity, so Class D would seem to be that for friendly help of a private kind. at those times of pressure which must occur in every poor man's life. State aided technical education would be of very great value for the children of this class. Class D numbers 67,220, or nearly 15 per cent. of the population.

E. *Regular Standard Earnings.* — These are the bulk of Section 5, together with a large proportion of the artisans and most other regular wage earners. I also include here, as having equal means, the best class of street sellers and general dealers, a large proportion of the small shopkeepers, the best off amongst the home manufacturers, and some of the small employers. This is by far the largest class of the population under review, consisting of 208,025, or 45½ per cent. The proportion which this class bears to the whole population remains nearly constant in the five sub-districts; the poverty of a district shows itself in the proportion below it as compared to the proportion above. It may be noted that Classes D and E together form in Tower Hamlets the actual middle class, the numbers above and below them being very fairly balanced.

The wage earners of Class E take readily any gratuities which fall in their way, and the whole class will mutually give or receive friendly help without sense of patronage or degradation; but against anything which could be called charity their pride rises stiffly. This class is the recognised field of all forms of co-operation and combination, and I believe, and am glad to believe, that it holds its future in its own hands. No class deserves more consideration; it does not constitute a majority of the population in the east of London, nor, probably, in the whole of London, but it perhaps may do so taking England as a whole. It should be said that only in a very general way of speaking does this body of men form one class, and beneath this generality lie wide divergences of character, interests, and ways of life. This class owns a good deal of property in the aggregate.

F. *Higher Class Labour.*—Foremen and responsible men from Section 6 of labour, a well-to-do and contented body of men, with whom are here counted the highest class of artisans in regular work, as being similarly situated socially and financially. There is, however, a great difference between the two: the foreman of ordinary labour generally sees things from the employer's point of view, while the skilled artisan sees them from the point of view of the employed. Connected with this fact it is to be observed that the foremen are a more contented set of men than the most prosperous artisans.

G. *Lower Middle Class.*—Shopkeepers and small employers, clerks, &c., and the lower professional class. A hard working, sober, energetic class, which I need not fully describe here. They no doubt will be comparatively more numerous in other districts of London.

H. *The Upper Middle Class.*—All above the lower middle class are here lumped together, and may be shortly defined as the "servant keeping" class. There are not many of these in the east of London; elsewhere they would need some sub-division to show gradations of wealth or differences of status.

It is to be remembered that the dividing lines between all these classes are indistinct; each class has, so to speak, a fringe of those who might be placed with the next division above or below; nor are the classes, as given, homogeneous by any means. I am ready to suppose, and even inclined to believe, that in each there may be as many grades of social rank as I know exist in Class H.

IV.—*Description of the Population by Sections.*

LABOUR.—The principal difficulty in the classification by character of employment lies in the first six sections, or divisions, of labour, which correspond with the first six classes just described.

These sections not only melt into each other by insensible degrees, but the only divisions which can be made are rather divisions of sentiment than of positive fact: the line between Nos. 1 and 2 (loafers and casual labourers) is of this character, difficult to test, and not otherwise to be established; and the boundaries of No. 2 are constantly fluctuating; for the casual labourer, besides being pressed on from below, when times are hard is also flooded from above, every class, even artisans and clerks, furnishing those who, failing to find a living in their own trade, compete at the dock gates for work. And on the other hand those of this class who have a preference, and come first in turn for the work of the casual sort that is to be had at the docks or elsewhere, practically step up into Section 4, or may do so if they choose, as obtaining regular work at low pay. Similarly it is most difficult to divide correctly No. 3 from No. 5 (irregular from regular), or No. 5 from No. 4 (ordinary from low wages); in times of bad trade many who would otherwise be counted as regularly employed sink for a time into No. 3, and it is in some cases difficult to learn the actual wages, as well as to decide where to draw the line, between No. 5 and No. 4.

Between No. 5 and No. 6 there is the same difficulty, especially where a higher rate of wages happens to be set off by greater irregularity of employment.

The general features of the first six sections have been already given in describing the corresponding classes.

Section No. 1—the lowest, corresponding with Class A. These are hardly to be called wage earners. They consist of casual labourers of low character, together with those who pick up a living without labour, and include the criminal or semi-criminal classes. Comparatively few of these are scheduled at all for the School Board, there being little regular family life among them, and the numbers given in my table are obtained by adding in an estimated number from the inmates of common lodging houses, and from the lowest class of streets.

The life of these people, and this applies to the whole counted under Class A, is really a savage life, with vicissitudes of extreme hardship and occasional excess. Their food is of the coarsest description, and their only luxury is drink. It is not easy to say how they live; the living is picked up, and what is got is frequently shared; when they cannot find 3*d.* for their night's lodging, unless favourably known to the deputy, they are turned out at night into the street, to return to the common kitchen in the morning. These are the battered figures who slouch through the streets, and play the beggar or the bully, or help to foul the record of the unemployed; these are the worst class of corner men who hang round the doors of public houses, the young men who spring forward on any chance to earn a copper, the ready materials for disorder when occasion serves. They render no useful service and create no wealth: they oftener destroy it. They degrade whatever they touch, and as individuals are almost incapable of improvement; they may be to some extent a necessary evil in every large city, but their numbers will be affected by the economical condition of the classes above them, and the discretion of "the charitable world;" their way of life by the pressure of police supervision.

It is much to be desired and to be hoped that this class may become less hereditary in its character. There appears to be no doubt that it is hereditary to a very considerable extent. The children of this class are the street arabs, and are principally to be found separated from the parents in pauper or industrial schools, and in such homes as Dr. Barnardo's. Some are in the board schools, and more in ragged schools, and the remainder, who cannot be counted, and may still be numerous, are every year confined within narrowing bounds by the persistent pressure of the School Board and other agencies.

While the number of children left in charge of this class is proportionately small, the number of young persons belonging to it is not so—young men who take naturally to loafing; girls who take almost as naturally to the streets; some drift back from the pauper and industrial schools, and others drift down from the classes of casual and irregular labour.

No. 1 section is recruited with adult men from every other section; all of these have been in some way "unfortunate," and most, if not all, have lost their characters. Women too drop down, with the men sometimes, more often from the streets. A considerable number of discharged soldiers are, I regret to say, to be found in Sections 1 and 2.

It is said that Section No. 1 are more possible as emigrants than Section No. 2, being more able to "help themselves"—our colonies may perhaps think this a doubtful recommendation. I believe, however, that some success has been made with the emigration of young men as well as with that of children from this section.

I have attempted to describe the prevailing type amongst these people, but I do not mean to say that there are not individuals of every sort to be found in the mass. Those who are able to wash the mud may find some gems in it. There are, at any rate, many very piteous cases.

Section No. 2 is intended to include none but true casual labourers, excluding the men already described under No. 1, who are not properly labourers at all; leaving for No. 3 those irregularly employed, who may be out of work or in work, but whose employment though mostly paid by the hour, has its tenure rather by the week, or the month, or the season; and for No. 4, those whose pay, however low, comes in with reasonable certainty and regularity from year's end to year's end.

In the Tower Hamlets the casual labourer finds his work usually at the docks, the London and St. Katherine's, the East and West India, the Millwall, and to some extent at the Victoria and Tilbury Docks, as will be seen when I describe the dock system; nor is there any other important field, for although a large number of men, in the aggregate, look for work from day to day at the wharves and canals and along the river side generally, or seek employment as porters in connection with the markets, there seems to be more regularity about the work, and perhaps less competition or less chance of competition between outsiders and those who being always on the spot, are personally known to the employers and their foremen.

At any rate, I find no important field for what is here meant by casual labour except the docks.

The total number of those scheduled in this section is 9,842 adult men for the whole of Tower Hamlets, or 7·7 per cent. of the whole number of adult men. How these numbers compare with the amount of employment to be had at the docks, I have discussed further on. The numbers are not very large, considering the very great public concern which has been aroused on this subject; but as a test of the condition of other classes, the ebb and flow of this little sea is really important; it provides a test of the condition of trade generally, as well as of certain trades in particular—a sort of "distress-meter"—and connects itself very naturally with the question of the unemployed.

The casuals here counted do not get so much as three days' work a week on the average; but how many could, or would, work *more* than half time if they could get it, is an open question as to which I have heard different opinions.

The better women of this class, those who do not drink, mostly do some work, and perhaps work more steadily than the men; but their work is of the lowest kind, such as sack making, and work done for others almost as poor as themselves, wretchedly paid; if they can earn the rent they do very well.

The boys as soon as they leave school pick up something, working for the city sewers, selling newspapers, and doing odd jobs. If they do not bring in enough they are likely to be turned adrift to fend for themselves, and are apt then to sink into Section No. 1. On the other hand, the more industrious no doubt rise into Sections 3, 4, or 5. Section No. 2 is not one in which men are born and live and die, so much as a deposit of those who, from mental, moral, or physical reasons, are incapable of better work.

The earnings of the men vary with the state of trade, and drop to a few shillings a week, or nothing at all, in bad times; they are never high, nor does this class make the hauls which come at times in the more hazardous lives of the class below them; when, for instance, a sensational newspaper sells by thousands in the streets for 2*d.* a copy.

Section No. 3.—Irregular employment. A little higher in the social scale than No. 2, this section consists of men who are usually on by the job, and who are in or out of work according to the season or the nature of their employment. Some will vary from one or two days to a full week (as stevedores and many sorts of porters), whilst others (as labourers in the building trades) may get eight or nine months' work in the year, but none of them get regular work all the year. They are, all round, men who if in regular work would be counted in Section 5, and it is therefore of particular interest to compare their numbers with those of the latter class, and to note that the proportion of those in irregular work is small. The great body of the labouring class (as distinguished from the skilled workmen) have a regular steady income, such as it is.

Some of the irregularly employed men earn very high wages, fully as high as those of the artisan class. These are men of great physical strength, working on coal or grain, or combining aptitude and practice with strength, as in handling timber. It is amongst such men, especially those carrying grain and coal, that the passion for drink is most developed. A man will very quickly earn 15*s.* or 20*s.*, but at the cost of great exhaustion, and many of them eat largely and drink freely till the money is gone, taking very little of it home. Others of this class earn wages approaching to artisan rates when, as in the case of stevedores, their work requires special skill, and is protected by trade organisation. If these men are to be counted in section No. 3, as unfortunately many of them must be at present, it is because their numbers are too great. While trade is dull the absorption of surplus labour by other trades is extremely slow. There are also in this section a large number of wharf and warehouse hands, who depend on the handling of certain crops for the London market. They have full work and good work when the wool or tea sales are on, and at other times may be very slack. These classes of irregular labour depend on the shipping trades, and have been put in Section 3, unless the absence of all signs of poverty entitled them to rank with Section 5. It is, I fear, possible that this rule may pass over much silent want, or even distress.

Besides those whose living depends on the handling of merchandise, we have in this section all the builders' labourers, and some others whose work is regulated by the seasons. With regard to these employments the periods of good and bad work are various, one trade being on while another is off; more goods to be handled, for instance, on the whole, in winter than in summer, against the stoppage of building in cold weather. I do not think, however, that one employment is dovetailed with another to any great extent; it would not be easy to arrange it, and most of the men make no effort of the kind. They take things as they come, work when they can get work in their own line, and otherwise go without, or, if actually hard up, try, almost hopelessly, for casual work. The more enterprising ones are more likely to fit in some small trade: selling roast potatoes perhaps in winter if their work is in summer, or the wife will keep a small shop to the business of which a man can turn his attention when his own trade is slack. These are the exceptions, and such men would probably pass into Section 5.

These men of Section 3 have a very bad character for improvidence, and I fear that the bulk of those whose earnings are irregular are wanting in ordinary prudence. Provident thrift, which lays by for to-morrow, is not a very hardy plant in England, and needs the regular payment of weekly wages to take root freely. It seems strange that a quality so much needed, and so highly rewarded, should not be developed more than seems to be the case. There may, however, be more of such thrift among the irregularly employed than is generally supposed, for it is those who do not have it who come most under observation. I understand that death clubs with a weekly subscription of ½*d.* to 2*d.* per head are very commonly subscribed to, and there are instances of a system by which tradesmen are paid small sums all through the summer against the winter expenditure at their shop, receiving the money on a deposit card, and acting in fact as a sort of savings bank. But such cases are exceptional; the reverse would be the rule, credit being given in winter against repayment in summer. Most benefit societies, death clubs, goose clubs, &c., are held at public houses, and the encouragement to thrift is doubtful. The publican is left too much in possession of the field as friend of the working man, and his friendship does not practically pay, for more is spent than is saved.

There will be many of the irregularly employed who could not keep a permanent job if they had it, and who must break out from time to time; but the worst of these drop into Section 2, and for the most part I take Section 3 to consist of hard-working struggling people, not worse morally than any other class, though shiftless and improvident, but out of whom the most capable are either selected for permanent work, or equally lifted out of the section by obtaining preferential employment in irregular work. They are thus a somewhat helpless class, not belonging usually to any trade society, and for the most part without natural leaders or organisation; the stevedores are the only exception I know of, and so far as they are here counted in No. 3, are so under peculiarly adverse circumstances; No. 5 is their proper section.

Labour of No. 3 character is very common in London. There may be more of it proportionately in other districts than in the Tower Hamlets, where I make the numbers 3,934 adult men, or a total, including dependents or semi-dependents, of 13,087 or nearly 3 per cent. of the population.

In this class the women usually work or seek for work when the men have none; they do charing, or washing, or needlework, for very little money; they bring no particular skill or persistent effort to what they do, and the work done is of slight value. Those who work the most regularly and are the best paid are the widows, who, though belonging socially to this class, are separately counted here in Sections 33 to 35.

Many fall out of Section 5 into Section 3 through ill health, and it is chiefly in such cases, and where there are many young children, that extreme poverty is felt; a man and his wife can get along, improvident or not, doing on very little when work fails; and the children as soon as they leave school, if they live at home, readily keep themselves, and sometimes do even more; the pressure and the imprudence of family life is felt in the years when the elder children are still at school, and the younger ones are still a care to the mother at home.

As to poverty, we find both poor and very poor in this section, as well as some above the line of poverty; but on the average they must be counted as "poor," under our definition of those whose means are barely sufficient for decent independent life.

Section No. 4.—Regular work at minimum wage. In this section have been included those whose labour may be paid daily and at the casual rates, but whose position is pretty secure, and whose earnings, though varying a little from week to week or from season to season, are in effect constant.

The men in this section are the better end of the casual dock and water side labour, those having directly or indirectly a preference for employment. It includes also a number of labourers in the gas works whose employment falls short in summer but never entirely ceases. The rest of this section are the men who are in regular work all the year round at a wage not exceeding

21*s.* a week. These are drawn from various sources, including in their numbers factory, dock, and warehouse labourers, carmen, messengers, porters, &c.; a few of each class. Some of these are recently married men, who will, after a longer period of service, rise into the next class; some are old and superannuated, semi-pensioners; but others are heads of families, and instances are to be met with (particularly among carmen) in which men have remained fifteen or twenty years at a stationary wage of 21*s.* or even less, being in a comparatively comfortable position at the start, but getting poorer and poorer as their family increased, and improving again as their children became able to add their quota to the family income. In such cases the loss of elder children by marriage is sometimes looked upon with jealous disfavour.

Of the whole class none can be said to rise above poverty, unless by the earnings of the children, nor are many to be classed as very poor. What they have comes in regularly, and except in times of sickness in the family, actual want rarely presses, unless the wife drinks. As a general rule these men have a hard struggle to make ends meet, but they are, as a body, decent steady men, paying their way and bringing up their children respectably. The work they do demands little skill or intelligence.

The comfort of their homes depends, even more than in other classes, on a good wife. Thrift of the "make-the-most-of-every-"thing" kind is what is needed, and in very many cases must be present, or it would be impossible to keep up so respectable an appearance as is done on so small an income.

In this class the women work a good deal to eke out the men's earnings, and the children begin to make more than they cost, when free from school: the boys go as van boys, errand boys, &c., and the girls into daily service, or into factories, or help the mother with whatever she has in hand.

The total numbers scheduled are 7,036 adult males, or a total of 23,249 people, or 5 per cent. of the population.

Section No. 5 contains all, not artisans, or otherwise scheduled, who earn from 22*s.* to 30*s.* per week for regular work. There are some of them who, when wages are near the lower figure, or the families are large, are not lifted above the line of poverty; but few of them are *very poor*, and the bulk of this large class can, and do, lead independent manly lives, and possess fairly comfortable homes.

As a rule the wives do not work, but the children all do: the boys commonly following the father (as is everywhere the case above the lowest classes), the girls taking to local trades, or going out to service.

The men in this section are connected with almost every form of industry, and include in particular carmen, porters and messengers, warehousemen, permanent dock labourers, stevedores, and many others. Of these some, such as the market porters and stevedores, do not earn regular wages, but both classes usually make a fair average result for the week's work, and only in exceptional cases have been placed in Section 3.

The whole section is instructive as showing the large proportion of the labour class who are in regular work at standard wages, and doubtless what holds good of the Tower Hamlets will not be less true elsewhere in London.

As here counted there are 15,251 adult men of this class, or a total of 51,329 including wives, children, and young people, or over 11 per cent. of the population.

Section No. 6.—The line between 5 and 6 has not been pressed closely, and it is probable that many whose earnings one way or another exceed 30*s.* per week have been allowed to remain in No. 5; those in section No. 6 earn certainly more than 30*s.*, and up to 45*s.* or 50*s.* Besides foremen are included city warehousemen of the better class, and first hand lightermen; they are usually paid for responsibility, and are men of very good character and much intelligence.

This is not a large section of the people, but it is a distinct and very honourable one. These men are the non-commissioned officers of the industrial army. No doubt there are others as good in the ranks, and vacant places are readily filled with men no less honest and trustworthy; all the men so employed have been selected out of many. The part they play in industry is peculiar. They have nothing to do with the planning or direction (properly so called) of business operations; their work is confined to superintendence. They supply no initiative, and having no responsibility of this kind they do not share in profits; but their services are very valuable, and their pay enables them to live reasonably comfortable lives, and provide adequately for old age. No large business could be conducted without such men as its pillars of support, and their loyalty and devotion to those whom they serve is very noteworthy. Most employers would admit this as to their own foremen, but the relation is so peculiar and personal in its character, that most employers also believe no other foremen to be equal to their own.

Their sons take places as clerks, and their daughters get employment in first class shops or places of business; if the wives work at all they either keep a shop, or employ girls at laundry work or at dressmaking.

Artisans.—I have divided the skilled workmen into six groups; their earnings and manner of life would be better considered for the whole of London, and I do not deal with this subject at length now.

Section 7—Building trades.—These show the signs of the depression of trade. The poor and very poor between them are 28·5 per cent. of their numbers. The unskilled labourers employed in building operations are of course not counted amongst the artisans.

Section 8—Furniture and woodwork.—This is a mixed section, containing highly skilled and highly paid men, as well as those employed on very common ill paid work. It is said that bad times or modern ideas tell against the high class work, that men accustomed to it are not capable of the speed at which the common work has to be done; and that the pay for the inferior work is cut down by the competition of foreign immigrants or by cheap importations.

Together with furniture, &c., are here grouped the shipwrights and coopers. The shipwrights have little work—a large portion of the trade is dead, and the coopers also complain. It is stated at the docks that there is less work for the coopers because sugar and coffee are now imported in bags instead of hogsheads. On the whole, however, the coopers seem better off than most others, and are a large body of men; they are of two sorts, the wet coopers, who are highly skilled, and make good wages, and the dry coopers, some of whom are hardly coopers at all, mending barrels and boxes in a rough and ready fashion, and earning but little. The percentage of "poor" is 23 per cent., and of very poor 7 per cent. in this section.

Sections 9 *and* 10 call for no particular remark in connection with the Tower Hamlets district.

Section 11—Dress.—This section consists mainly of tailors and shoemakers, or those connected with these trades. These industries deserve a very full description, and in some aspects are closely connected with the district I am reviewing, but I have not sufficient information at present; as with the furniture trade, we find in this section all varieties of work and remuneration, and in this trade more than any other, the competition of indigent foreigners working very long hours is felt. In this section the percentage of poor is 39 per cent., and of very poor 6½ per cent.

Section 12—Food production.—Slaughtermen, journeymen bakers, brewers' servants, sugar refiners, fish curers, and cigar makers. Of these the best paid are the slaughtermen and brewers' servants; it has however been difficult to distinguish between the brewers and the brewers' labourers, who rightly belong to Section 5 of labour. The distinction is not very material, as the other employments in this section are on the whole poorly paid, and rank in that respect little, if at all, above the standard of labour No. 5, in which section brewers' labourers ought to be. Cigar making is passing to women, the sugar business has been extremely slack, and fish curing, though prosperous, is an industry of the poor. These employments nearly all suffer more or less from cheap immigrant labour. The percentage of poor is 18 per cent., and of very poor $2\frac{1}{2}$ per cent.

Sections 13 *and* 14 (Railway and road service) and *Section* 15 (assistants in refreshment houses and shops) need no remark.

Section 16, subordinate officials, includes police, firemen, custom house officers, and soldiers.

Section 17—Seamen.—The numbers here given include absent married men who have homes here.

Section 18—Other wage earners.—These are farriers, drovers, gardeners, gas and water works service, &c.

At this point we pass from wage earners, who to give value to their work have to please the wage payers, to profit earners, who in order to be paid have to please the public, and the difference is a marked one. The commonest labourer and the most skilful highly paid mechanic are alike in that whatever they do their labour will be wasted if misapplied, and that as to its application they have no responsibility: they are paid their wages equally whether they have or have not produced the value in consumption that is to be hoped for out of their work; but the master manufacturer, as much as the poorest flower girl, or the commonest street acrobat must please his public to earn anything. The distinction is no question of wealth; with the artisans, as with ordinary labour, we have seen under one denomination very varied conditions of life; and in considering the profit earners also, we shall again begin with those who are very poor.

First come those whose profit is made from MANUFACTURE, who form the link between the operatives and the dealers, insomuch as, while the dealers supply, and must please the public, the makers work to satisfy the dealers.

Section 19—Home industries and small manufacturers who do not employ.—These work at home, buying the materials and selling the product. Home industries, where the whole family work together, are such as slipper making, toy making, firewood cutting, &c. Those who work by themselves, but also on their own materials, are small bootmakers and tailors (making and mending), watch and clock makers (entirely repairing), locksmiths, picture frame makers, and many more. With them are here included sweeps and printers, who employ no one but do not themselves work for wages. Altogether this is a considerable and rather interesting class, the last relic of an older industrial system.

For poverty and manner of life all these are little removed from Sections 2 and 3, or from the poorest artisans, and they often work for an employer when unable to get work on their own account. The poor here are 25 per cent., and the very poor 6½ per cent.

Section 20—Small employers, employing from 1 to 10 workpeople or servants.—This class is for the most part energetic and well to do, but includes the much vilified "sweaters," many of whom are only a shade better off than those whose labour they control. I shall describe the sweating system later.

Section 21 are the large employers.

Dealers.—Passing now to those who deal direct with the public, we begin at the lowest point with :—

Sections 22 *and* 23—the street trades—consist of three main divisions: street performers, street sellers, and general dealers, and each of these contribute to the lowest class.

Organ grinders and acrobats, professional beggars, those who sell penny notions from a tray in the city streets, and newspaper hawkers, with the poorest of the costermongers; and (amongst the general dealers) the buyers in a small way of old boots for "translating," old clothes for renovation, collectors of old iron, &c., whose whole business, whether in buying or selling, is conducted amongst the very poor. Many of these belong to our lowest class, and hardly a full proportion of them come naturally into the schedules. I have therefore added to their number a proportion from the common lodging houses.

Further contingents from the street trades pass into classes B and C, in company with casual and irregular labour; these are musicians in poor or irregular employ, costermongers without capital, chair caners, street glaziers, and struggling dealers.

The life of these people is much like that of the casual labourer, with some of the vicissitudes of Section 1. They live from hand to mouth, and go "hopping," or to Margate sands, as the case may be, for change of air.

The remainder of Sections 22 and 23 are pretty well to do, certainly above the line of poverty, and are included in Class E. They are, ordinary public musicians with regular work, billiard markers, scene painters, and travelling photographers; costermongers with capital in stock and barrow, and perhaps a donkey; coffee stall keepers, cats'-meat men, and successful general dealers.

The section, taken altogether, is a large one in the east end of London, and deserves a more complete description than can be given here; certain parts of Whitechapel, including the neighbourhood of Petticoat Lane (now called Middlesex Street), serve as a market for outlying districts even beyond the area of the Tower Hamlets. To deal "in the lane" is a sufficient description of many we have met with.

"Dealing" and "street selling" are distinct occupations, except at quite the bottom level. The dealer is a small itinerant merchant; the street seller is a sort of shop keeper, whose stock is contained in a stall, or a barrow, or a basket. The general dealers are nearly all Jews, and some of them buy and sell in a large way, and handle large sums of money, though their ways of life are hardly removed from those of the quite poor of their nationality. The business of a general dealer is never visible on the surface, and with some it is a mystery, to which, perhaps, the police only could furnish a key; while the street sellers, as a rule, whether in a large or small way, are most open and palpable servants of the public. Costermongers of the upper grade are a very well-to-do set; they have a valuable property in their stock, &c.; they sometimes have both stall and barrow, working as a family; and some step up into the shopkeeping class by establishing the wife in a small shop, while the man still goes round with the barrow. The street trades seem prosperous, and those who drive these trades are better off to-day than many skilled workmen, though of much lower social grade, and in fact a rough lot. In this employment the possession of capital is a very great power. The man who has wit to get together a little money, and resolution enough to keep his capital sacred, spending only his profits, and saving out of them against the loss of a donkey, or the need of a new barrow, will surely prosper. Those who have to borrow pay dear for the accommodation, and besides are probably the men whose character or whose necessities make saving impossible.

There are men in the East End who make a large income by letting out barrows to this class.

Among the lower grade of costermongers are to be found labourers who take to street selling as an alternative when work is slack, but it is probably difficult to make such a combination successful. The poor in Section 22 are 44 per cent., the very poor 15½ per cent.; for Section 23 they are 17 and 2½ per cent. respectively.

Section 24.—Small shops, or those where no assistants are employed, are a very wide class, including people in the greatest poverty attempting to pay rent and obtain a living out of the sale of things of hardly any value to customers with hardly any money, and every grade upwards to the well-to-do tradesman with a prosperous business closely looked after by wife and junior members of the family, who being sufficient in themselves need employ no one.

As the result of a careful examination of the streets, I have been able roughly to apportion this section to the different classes, but it is often impossible to say whether a shop is making money or not. It perhaps loses, and is closed, and at once another takes its place. We may reasonably assume that if they do not drop out of existence as shops, profit is on the whole to be found in the business. This, however, gives an inadequate picture of a class, on whom, whether in decrease of sales or increase of bad debts, must fall much of the weight of a depressed condition of trade. It may be that the cheapened cost of what they have to sell, and the full prices which the credit they give and the hand-to-mouth habits of their customers enable them to charge, leave a good margin: and so far they have not been seriously attacked by the co-operative system, which may some day step in between them and their profits.

It is to be noted that most of the quite small shops in the district are not included at all in this section, being kept by the wives of men otherwise employed, whose families are here scheduled according to the man's trade. These small shops play only a subsidiary part in the family economy, and it is not to be wondered at if those who try to make an entire living out of a business so handicapped, find it very difficult.

Sections 25, 26, *and* 27—Large shops, refreshment houses and public houses—require no special comment here.

We have now completed those who live by dealing.

Sections 28 *to* 30—the salaried and professional classes—call for no particular remark. The clerks contribute to every class, from B to H, and have been apportioned as the result of a special analysis. Casual dock clerks get no better pay than casual labour, 5*d*. per hour when at work, and can be had in numbers at that price for either short or long hours.

Section 31 embraces chronic cases of illness and those who claim no occupation, and yet are not of independent means; the latter are not out of work cases, as to which the present tables provide no direct information. All in this section are supported in some other way than by their own work, mostly by the work of wives or children. Those with independent means appear under Section 32.

Sections 33 *to* 38 contain the female heads of families, being self-supporting women with families. The proportion of poor and very poor is extremely large here.

Section 39 contains all other adult women, and these are here divided into classes in proportion to the rest of the population. I write more fully of these women later on.

The numbers of the inmates of institutions, hospitals, workhouses, &c., are needed to complete the population by census, as is shown in the appendix.

The total population is adduced from the 1881 census, by comparing the school children counted at that time with those found now, the change in the numbers of the whole population being supposed to be in proportion to that of these children.

Table of Sections and

NOTE.—The figures in these tables must

Divided into Sections according to Character of Employment of Heads of Families.

Section.		Description.	Heads of Families.	More or less Dependent.			Unmarried Men over 20.	Total.	Percentage.
				Wives.	Children —15.	Young Persons. 15—20.			
Married Men.									
Labour	1	Lowest class, loafers, &c....	409	403	139	352	795	2,098	2·85
	2	Casual day-to-day labour....	500	493	825	238	973	3,029	4·12
	3	Irregular labour	295	291	544	158	174	1,462	1·99
	4	Regular work, low pay........	401	395	678	197	236	1,907	2·59
	5	,, ordinary pay	1,272	1,256	2,377	689	749	6,343	8·63
	6	Foremen and responsible work	115	114	244	70	68	611	0·83
Artisans	7	Building trades	258	255	511	149	153	1,326	1·80
	8	Furniture, wood work, &c.	364	359	708	206	216	1,853	2·53
	9	Machinery and metals	185	183	327	95	109	899	1·23
	10	Sundry artisans....................	618	608	1,120	327	362	3,035	4·15
	11	Dress	2,597	2,556	5,221	1,507	1,525	13,406	18·23
	12	Food preparation	913	904	1,940	564	540	4,861	6·61
Locomo-	13	Railway service	107	106	173	49	63	498	0·68
tion	14	Road service	127	126	253	73	75	654	0·90
Assistants	15	Shops and refreshment houses	226	223	427	124	132	1,132	1·54
Other	16	Police, soldiers, and sub-officials	215	212	429	124	126	1,106	1·51
wages	17	Seamen	27	26	48	14	15	130	0·18
	18	Other wage earners	76	75	145	42	44	382	0·52
Manufac-	19	Home industries, not employing	238	236	474	139	140	1,227	1·66
ture, &c.	20	Small employers	673	662	1,689	488	406	3,918	5·31
	21	Large ,, ...	100	100	148	43	58	449	0·61
Dealers....	22	Street sellers, &c.	523	516	1,048	301	468	2,856	3·87
	23	General dealers....................	577	569	1,163	338	337	2,984	4·05
	24	Small shops	637	630	1,157	336	372	3,132	4·23
	25	Large shops, employing assistants	350	345	690	200	206	1,791	2·45
Refresh-	26	Coffee and boarding houses	99	94	189	54	57	493	0·67
ment	27	Licensed houses	156	154	265	76	91	742	1·02
Salaried,	28	Clerks and agents................	266	262	514	149	155	1,346	1·84
&c.	29	Subordinate professional....	82	81	173	53	48	437	0·59
	30	Professional	37	37	67	20	21	182	0·25
No work	31	Ill and no occupation	93	91	158	46	54	442	0·60
	32	Independent	14	14	9	2	8	47	0·06
Total of		male heads of families	(12,550)						
Females.									
	33	Semi-domestic employment	361	—	578	169	—	1,108	1·50
	34	Dress	151	—	250	73	—	474	0·64
	35	Small trades	141	—	266	77	—	484	0·66
	36	Employing and professional	30	—	39	11	—	80	0·11
	37	Supported	111	—	166	49	—	326	0·44
	38	Independent	25	—	34	10	—	69	0·09
Total of		female heads of families	(819)						
	39	Other adult women	—	—	—	—	—	6,199	8·46
		Total population	13,369	12,376	25,186	7,612	8,776	73,518	100·00

Classes. WHITECHAPEL.

only be taken as approximately correct.

	Divided into Classes according to Means and Position of Heads of Families.								
Section.	A. Lowest Class.	B. Casual and Very Poor.	C. Irregular Poor.	D. Regular Minimum.	E. Regular Ordinary.	F. Highly Paid Labour.	G. Lower Middle.	H. Upper Middle.	Total.
1	2,098	—	—	—	—	—	—	—	2,098
2	—	3,029	—	—	—	—	—	—	3,029
3	—	192	1,184	—	86	—	—	—	1.462
4	—	—	—	1,907	—	—	—	—	1,907
5	—	—	—	1,079	5,264	—	—	—	6,343
6	—	—	—	—	—	611	—	—	611
7	—	53	146	265	809	53	—	—	1,326
8	—	139	139	315	1,195	65	—	—	1,853
9	—	—	63	108	638	90	—	—	899
10	—	106	389	388	1,438	714	—	—	3,035
11	—	942	2,430	3,206	6,348	480	—	—	13,406
12	—	92	—	1,016	3,753	—	—	—	4,861
13	—	17	—	67	364	50	—	—	498
14	—	21	—	232	401	—	—	—	654
15	—	44	—	168	920	—	—	—	1,132
16	—	43	—	164	899	—	—	—	1,106
17	—	5	19	—	106	—	—	—	130
18	—	14	27	27	251	63	—	—	382
19	—	53	366	—	808	—	—	—	1,227
20	—	—	—	67	744	2,234	744	129	3,918
21	—	—	—	—	—	—	224	225	449
22	174	174	741	741	1,026	—	—	—	2,856
23	—	75	552	—	2,121	—	236	—	2,984
24	—	16	24	305	1,564	922	301	—	3,132
25	—	—	—	—	—	895	896	—	1,791
26	—	—	—	5	79	182	227	—	493
27	—	—	—	5	13	119	386	219	742
28	—	27	54	121	540	444	120	40	1,346
29	—	—	—	—	—	—	437	—	437
30	—	—	—	—	—	—	—	182	182
31	—	132	155	155	—	—	—	—	442
32	—	—	—	—	—	—	47	—	47
33	—	339	545	—	224	—	—	—	1,108
34	—	102	—	307	65	—	—	—	474
35	—	96	123	124	141	—	—	—	484
36	—	—	—	—	—	—	80	—	80
37	—	48	—	150	128	—	—	—	326
38	—	—	—	—	—	—	69	—	69
39	215	574	568	1,235	2,576	638	320	73	6,199
Total	2,487	6,333	7,525	12,157	32,501	7,560	4,087	868	73,518
Per cent.	3·38	8·62	10·20	16·57	44·21	10·35	5·49	1·18	100·00

Table of Sections and Classes.

Divided into Sections according to Character of Employment of Heads of Families.

Section.	Description.	Heads of Families.	More or less Dependent.			Unmarried Men over 20.	Total.	Percentage.
			Wives.	Children —15.	Young Persons, 15—20.			
Married Men.								
Labour 1	Lowest class, loafers, &c.....	221	220	93	96	103	733	1·64
2	Casual day-to-day labour....	882	876	1,486	366	629	4,239	9·50
3	Irregular labour	560	560	988	242	267	2,617	5·88
4	Regular work, low pay........	403	403	733	181	192	1 912	4·30
5	,, ordinary pay	1,187	1,180	2,141	526	554	5,588	12·54
6	Foremen and responsible work	299	300	546	135	142	1,422	3·19
Artisans 7	Building trades	267	267	482	119	126	1,261	2·83
8	Furniture, wood work, &c.	266	265	481	119	126	1,257	2·82
9	Machinery and metals........	192	192	349	86	91	910	2·04
10	Sundry artisans	362	360	653	160	170	1,705	3·83
11	Dress	980	970	1,765	436	462	4,613	10·34
12	Food preparation	441	440	803	197	208	2,089	4·68
Locomotion 13	Railway service....................	51	50	92	23	24	240	0·54
14	Road service	82	82	150	37	39	390	0·88
Assistants 15	Shops and refreshment houses	138	136	248	61	65	648	1·45
Other wages 16	Police, soldiers, and sub-officials	28	28	51	12	13	132	0·30
17	Seamen	268	267	490	120	126	1,271	2·86
18	Other wage earners	84	83	150	37	39	393	0·88
Manufacture, &c. 19	Home industries, not employing	106	105	194	48	50	503	1·13
20	Small employers	162	162	234	58	77	693	1·55
21	Large ,, ...	32	31	43	10	15	131	0·30
Dealers.... 22	Street sellers, &c.	113	110	218	54	52	547	1·23
23	General dealers....................	120	121	202	50	58	551	1·20
24	Small shops	453	449	822	201	213	2,138	4·80
25	Large shops, employing assistants	180	180	244	60	85	749	1·68
Refreshment 26	Coffee and boarding houses	81	80	119	29	38	347	0·78
27	Licensed houses	130	129	164	41	67	531	1·18
Salaried, &c. 28	Clerks and agents................	160	158	292	73	75	758	1·71
29	Subordinate professional....	40	39	79	19	18	195	0·44
30	Professional	21	21	29	7	10	88	0·20
No work 31	Ill and no occupation	30	30	52	13	14	139	0·31
32	Independent	24	24	31	8	11	98	0·22
Total of	male heads of families........	(8,363)						
Females.								
33	Semi-domestic employment	341	—	701	173	—	1,215	2·72
34	Dress	181	—	386	95	—	662	1·49
35	Small trades	111	—	237	58	—	406	0·91
36	Employing and professional	24	—	37	9	—	70	0·16
37	Supported	36	—	57	14	—	107	0·24
38	Independent	8	—	11	4	—	23	0·05
Total of	female heads of families	(701)						
39	Other adult women	—	—	—	—	—	3,211	7·20
	Total population	9,064	8,318	15,853	3,977	4,159	44,582	100·00

ST. GEORGE'S-IN-THE-EAST.

Divided into Classes according to Means and Position of Heads of Families.

Section.	A. Lowest Class.	B. Casual and Very Poor.	C. Irregular Poor.	D. Regular Minimum.	E. Regular Ordinary.	F. Highly Paid Labour.	G. Lower Middle.	H. Upper Middle.	Total.
1	733	—	—	—	—	—	—	—	733
2	—	4,239	—	—	—	—	—	—	4,239
3	—	411	1,964	—	242	—	—	—	2,617
4	—	—	—	1,912	—	—	—	—	1,912
5	—	28	—	1,129	4,431	—	—	—	5,588
6	—	—	—	—	—	1,422	—	—	1,422
7	—	76	88	189	795	113	—	—	1,261
8	—	63	50	175	881	88	—	—	1,257
9	—	45	27	100	665	73	—	—	910
10	—	63	191	190	752	509	—	—	1,705
11	—	369	784	1,107	2,168	185	—	—	4,613
12	—	40	—	436	1,613	—	—	—	2,089
13	—	6	—	25	154	55	—	—	240
14	—	24	—	123	243	—	—	—	390
15	—	22	—	86	540	—	—	—	648
16	—	4	—	18	110	—	—	—	132
17	—	42	168	—	1,061	—	—	—	1,271
18	—	13	26	27	262	65	—	—	393
19	—	30	132	—	341	—	—	—	503
20	—	—	—	12	106	403	138	34	693
21	—	—	—	—	—	—	66	65	131
22	43	43	244	—	217	—	—	—	547
23	—	15	110	—	384	—	42	—	551
24	—	10	11	171	963	641	342	—	2,138
25	—	—	—	—	—	—	374	375	749
26	—	—	—	—	45	83	219	—	347
27	—	—	—	—	11	74	297	149	531
28	—	10	15	68	303	218	106	38	758
29	—	—	—	—	—	—	195	—	195
30	—	—	—	—	—	—	—	88	88
31	—	62	77	—	—	—	—	—	139
32	—	—	—	—	—	—	98	—	98
33	—	434	596	—	185	—	—	—	1,215
34	—	163	—	384	115	—	—	—	662
35	—	95	90	89	132	—	—	—	406
36	—	—	—	—	—	—	70	—	70
37	—	18	—	29	60	—	—	—	107
38	—	—	—	—	—	—	23	—	23
39	60	491	355	486	1,303	305	153	58	3,211
Total	836	6,816	4,928	6,756	18,082	4,234	2,123	807	44,582
Per cent.	1·88	15·29	11·05	15·15	40·56	9·50	4·76	1·81	100·00

Table of Sections and

Divided into Sections according to Character of Employment of Heads of Families.

Section.	Description.	Heads of Families.	More or less Dependent.			Unmarried Men over 20.	Total.	Percentage.
			Wives.	Children —15.	Young Persons 15—20.			
Married Men.								
Labour 1	Lowest class, loafers, &c.....	183	183	103	87	196	752	1·21
2	Casual day-to-day labour....	1,430	1,430	2,559	656	681	6,756	10·90
3	Irregular labour	430	430	801	206	205	2,072	3·34
4	Regular work, low pay........	622	622	1,105	283	296	2,928	4·71
5	,, ordinary pay	1,846	1,846	3,655	940	877	9,164	14·76
6	Foremen and responsible work	620	620	1,202	309	295	3,046	4·91
Artisans 7	Building trades..................	519	519	1,043	267	250	2,598	4·18
8	Furniture, wood work, &c.	681	681	1,318	338	323	3,341	5·39
9	Machinery and metals	751	751	1,440	369	357	3,668	5·90
10	Sundry artisans	456	456	854	219	217	2,202	3·54
11	Dress	170	170	300	77	81	798	1·29
12	Food preparation	244	244	479	121	116	1,204	1·94
Locomotion 13	Railway service..................	67	67	125	32	32	323	0·52
14	Road service	81	81	167	43	39	411	0·66
Assistants 15	Shops and refreshment houses	197	197	354	90	94	932	1·50
Other 16	Police, soldiers, and sub-officials	224	224	422	108	106	1,084	1·74
wages 17	Seamen	375	375	628	161	178	1,717	2·77
18	Other wage earners	97	97	163	42	46	445	0·72
Manufacture, &c. 19	Home industries, not employing	196	196	404	104	94	994	1·60
20	Small employers	237	237	510	131	112	1,227	1·98
21	Large ,, ...	49	49	95	24	23	240	0·39
Dealers.... 22	Street sellers, &c.	182	182	343	88	86	881	1·42
23	General dealers..................	74	74	137	35	35	355	0·57
24	Small shops	352	352	694	177	167	1,742	2·80
25	Large shops, employing assistants.........................	262	262	553	141	124	1,342	2·17
Refreshment 26	Coffee and boarding houses	90	90	158	40	43	421	0·68
27	Licensed houses	174	174	283	73	82	786	1·26
Salaried, &c. 28	Clerks and agents................	450	450	803	206	213	2,122	3·42
29	Subordinate professional	174	174	322	83	82	835	1·34
30	Professional	82	82	163	42	39	408	0·66
No work 31	Ill and no occupation	37	37	68	17	18	177	0·28
32	Independent	32	32	40	10	15	129	0·21
Total of	male heads of families........	11,384						
Females.								
33	Semi-domestic employment	350	—	491	126	—	967	1·56
34	Dress	198	—	284	73	—	555	0·90
35	Small trades	125	—	190	49	—	364	0·59
36	Employing and professional	13	—	19	5	—	37	0·06
37	Supported	101	—	146	37	—	284	0·46
38	Independent	35	—	74	19	—	128	0·21
Total of	female heads of families	822						
39	Other adult women	—	—	—	—	—	4,628	7·46
	Total population	12,206	11,384	22,495	5,828	5,522	62,063	100·00

Classes. STEPNEY.

Divided into Classes according to Means and Position of Heads of Families.

Section.	A. Lowest Class.	B. Casual and Very Poor.	C. Irregular Poor.	D. Regular Minimum.	E. Regular Ordinary.	F. Highly Paid Labour.	G. Lower Middle.	H. Upper Middle.	Total.
1	752	—	—	—	—	—	—	—	752
2	—	6,756	—	—	—	—	—	—	6,756
3	—	378	1,436	—	258	—	—	—	2,072
4	—	—	—	2,928	—	—	—	—	2,928
5	—	83	—	2,154	6,927	—	—	—	9,164
6	—	—	—	—	—	3,046	—	—	3,046
7	—	182	129	364	1,611	312	—	—	2,598
8	—	167	134	468	2,272	300	—	—	3,341
9	—	183	73	477	2,642	293	—	—	3,668
10	—	75	195	195	1,021	716	—	—	2,202
11	—	136	15	160	367	120	—	—	798
12	—	63	—	290	851	—	—	—	1,204
13	—	4	—	17	125	177	—	—	323
14	—	35	—	116	260	—	—	—	411
15	—	23	—	109	800	—	—	—	932
16	—	27	—	127	930	—	—	—	1,084
17	—	43	200	—	1,474	—	—	—	1,717
18	—	11	26	26	306	76	—	—	445
19	—	71	222	—	701	—	—	—	994
20	—	—	—	172	123	540	294	98	1,227
21	—	—	—	—	—	—	120	120	240
22	79	79	336	—	387	—	—	—	881
23	—	24	89	—	193	—	49	—	355
24	—	—	14	87	788	627	226	—	1,742
25	—	—	—	—	—	—	671	671	1,342
26	—	—	—	—	42	126	253	—	421
27	—	—	—	—	15	86	481	204	786
28	—	21	—	191	891	554	338	127	2,122
29	—	—	—	—	—	—	835	—	835
30	—	—	—	—	—	—	—	408	408
31	—	78	99	—	—	—	—	—	177
32	—	—	—	—	—	—	129	—	129
33	—	396	472	—	99	—	—	—	967
34	—	153	—	286	116	—	—	—	555
35	—	97	67	68	132	—	—	—	364
36	—	—	—	—	—	—	37	—	37
37	—	57	—	36	191	—	—	—	284
38	—	—	—	—	—	—	128	—	128
39	67	737	274	675	1,895	562	287	131	4,628
Total	898	9,879	3,781	8,946	25,417	7,535	3,848	1,759	62,063
Per cnt.	1·45	15·92	5·94	14·57	40·95	12·14	6·20	2·83	100·00

Table of Sections and Classes.

Divided into Sections according to Character of Employment of Heads of Families.

Section.	Description.	Heads of Families.	More or less Dependent.			Un-married Men over 20.	Total.	Per-centage.
			Wives.	Children —15.	Young Persons, 15—20.			
Married Men.								
Labour 1	Lowest class, loafers, &c.....	224	224	73	104	91	716	0·65
2	Casual day-to-day labour....	673	673	1,215	302	350	3,213	2·91
3	Irregular labour	492	492	974	240	200	2,398	2·18
4	Regular work, low pay	688	688	1,183	294	279	3,132	2·84
5	,, ordinary pay	2,886	2,886	5,418	1,345	1,171	13,706	12·43
6	Foremen and responsible work	558	558	1,037	256	227	2,636	2·39
Artisans 7	Building trades....................	1,290	1,290	2,445	604	523	6,152	5·57
8	Furniture, wood work, &c.	1,166	1,166	2,351	582	474	5,739	5·20
9	Machinery and metals	819	819	1,585	394	332	3,949	3·58
10	Sundry artisans....................	1,243	1,243	2,326	574	504	5,890	5·33
11	Dress	1,227	1,227	2,362	582	498	5,896	5·34
12	Food preparation	1,020	1,020	1,943	482	413	4,878	4·42
Locomo- 13	Railway service	188	188	370	94	76	916	0·83
tion 14	Road service	378	378	759	186	153	1,854	1·68
Assistants 15	Shops and refreshment houses	831	831	1,565	386	336	3,949	3·58
Other 16	Police, soldiers, and sub-officials	441	441	806	200	180	2,068	1·87
wages 17	Seamen	327	327	542	134	133	1,463	1·32
18	Other wage earners	375	375	584	146	152	1,632	1·49
Manufac- 19	Home industries,not employing	396	396	812	202	160	1,966	1·78
ture,&c. 20	Small employers	648	648	1,471	366	262	3,395	3·08
21	Large ,, ...	89	89	240	60	36	514	0·47
Dealers.... 22	Street sellers, &c.	277	277	544	136	113	1,347	1·22
23	General dealers....................	498	498	1,095	272	201	2,564	2·32
24	Small shops	663	663	1,283	318	270	3,197	2·89
25	Large shops, employing assistants	511	511	1,046	260	207	2,535	2·29
Refresh- 26	Coffee and boarding houses	46	46	109	26	19	246	0·22
ment 27	Licensed houses	223	223	384	96	90	1,016	0·93
Salaried, 28	Clerks and agents................	1,232	1,232	2,334	580	500	5,878	5·33
&c. 29	Subordinate professional	334	334	636	158	135	1,597	1·45
30	Professional	121	121	256	64	49	611	0·56
No work 31	Ill and no occupation	59	59	123	32	24	297	0·27
32	Independent	101	101	136	34	41	413	0·37
Total of	male heads of families	(20,024)						
Females.								
33	Semi-domestic employment	651	—	986	244	—	1,881	1·71
34	Dress	484	—	705	178	—	1,367	1·24
35	Small trades	184	—	263	66	—	513	0·46
36	Employing and professional	56	—	112	28	—	196	0·18
37	Supported	146	—	216	54	—	416	0·38
38	Independent	105	—	150	38	—	293	0·27
Total of	female heads of families	(1,626)						
39	Other adult women	—	—	—	—	—	9,892	8·97
	Total population	21,650	20,024	40,439	10,117	8,199	110,321	100·00

MILE END OLD TOWN.

Divided into Classes according to Means and Position of Heads of Families.

Section.	A. Lowest Class.	B. Casual and Very Poor.	C. Irregular Poor.	D. Regular Minimum.	E. Regular Ordinary.	F. Highly Paid Labour.	G. Lower Middle.	H. Upper Middle.	Total.
1	716	—	—	—	—	—	—	—	716
2	—	3,213	—	—	—	—	—	—	3,213
3	—	575	1,623	—	200	—	—	—	2,398
4	—	—	—	3,132	—	—	—	—	3,132
5	—	54	—	2,508	11,144	—	—	—	13,706
6	—	—	—	—	—	2,636	—	—	2,636
7	—	369	492	738	4,245	308	—	—	6,152
8	—	287	344	746	3,960	402	—	—	5,739
9	—	118	142	288	2,848	553	—	—	3,949
10	—	154	416	417	2,600	2,303	—	—	5,890
11	—	59	58	1,297	3,834	648	—	—	5,896
12	—	98	368	368	4,044	—	—	—	4,878
13	—	11	—	49	514	342	—	—	916
14	—	62	—	380	1,412	—	—	—	1,854
15	—	76	—	331	3,542	—	—	—	3,949
16	—	39	—	174	1,855	—	—	—	2,068
17	—	28	124	—	1,311	—	—	—	1,463
18	—	31	69	69	1,171	292	—	—	1,632
19	—	117	378	—	1,471	—	—	—	1,966
20	—	—	—	66	694	1,552	951	132	3,395
21	—	—	—	—	—	—	257	257	514
22	123	124	582	—	518	—	—	—	1,347
23	—	46	312	—	1,755	—	451	—	2,564
24	—	32	—	126	2,390	480	169	—	3,197
25	—	—	—	—	—	—	1,267	1,268	2,535
26	—	—	—	—	15	74	157	—	246
27	—	—	—	—	20	173	539	284	1,016
28	—	29	175	292	1,880	2,272	940	290	5,878
29	—	—	—	—	—	—	1,597	—	1,597
30	—	—	—	—	—	—	—	611	611
31	—	171	126	—	—	—	—	—	297
32	—	—	—	—	—	—	413	—	413
33	—	572	1,024	—	285	—	—	—	1,881
34	—	371	—	693	303	—	—	—	1,367
35	—	104	76	77	256	—	—	—	513
36	—	—	—	—	—	—	196	—	196
37	—	42	—	83	291	—	—	—	416
38	—	—	5	—	—	—	293	—	293
39	83	666	637	1,170	5,160	1,181	715	280	9,892
Total	922	7,448	6,946	13,004	57,718	13,216	7,945	3,122	110,321
Per cnt.	0·83	6·75	6·30	11·79	52·32	11·98	7·20	2·83	100·00

Table of Sections and

Divided into Sections according to Character of Employment of Heads of Families.

Section.	Description.	Heads of Families.	More or less Dependent.			Unmarried Men over 20.	Total.	Percentage.
			Wives.	Children —15.	Young Persons, 15—20.			
Married Men.								
Labour.... 1	Lowest class, loafers, &c.....	433	425	89	254	332	1,533	0·92
2	Casual day-to-day labour....	2,705	2,652	5,315	1,184	1,019	12,875	7·74
3	Irregular labour	952	933	1,876	418	359	4,538	2·73
4	Regular work, low pay........	2,847	2,792	5,445	1,214	1,072	13,370	8·03
5	,, ordinary pay	3,421	3,355	6,921	1,543	1,288	16,528	9·93
6	Foremen and responsible work	1,297	1,272	2,676	584	488	6,317	3·80
Artisans.... 7	Building trades....................	2,537	2,487	5,294	1,180	956	12,454	7·48
8	Furniture, wood work, &c.	2,024	1,985	4,335	966	762	10,072	6·06
9	Machinery and metals........	2,908	2,851	5,933	1,322	1,095	14,109	8·48
10	Sundry artisans....................	1,349	1,323	2,804	625	508	6,609	3·97
11	Dress	779	764	1,617	360	294	3,814	2·29
12	Food preparation	505	495	1,025	229	190	2,444	1·47
Locomotion 13	Railway service....................	763	748	1,600	357	288	3,756	2·26
14	Road service	289	284	556	125	108	1,362	0·82
Assistants 15	Shops and refreshment houses	625	613	1,267	283	235	3,023	1·82
Other wages 16	Police, soldiers, and sub-officials	611	599	1,284	286	229	3,009	1·81
17	Seamen	1,291	1,266	2,193	488	486	5,724	3·44
18	Other wage earners	479	470	678	152	180	1,959	1·18
Manufacture, &c. 19	Home industries, not employing	354	347	727	163	133	1,724	1·03
20	Small employers	427	419	945	211	160	2,162	1·30
21	Large ,, ...	83	82	172	39	31	407	0·25
Dealers.... 22	Street sellers, &c.	259	254	542	121	98	1,274	0·77
23	General dealers....................	183	180	349	78	69	859	0·52
24	Small shops	1,059	1,039	1,721	383	399	4,601	2·76
25	Large shops employing assistants........................	469	460	1,042	233	176	2,380	1·43
Refreshment 26	Coffee and boarding houses	121	119	234	52	46	572	0·34
27	Licensed houses	219	215	522	117	82	1,155	0·69
Salaried, &c. 28	Clerks and agents................	1,411	1,383	2,830	631	531	6,786	4·08
29	Subordinate professional....	583	572	1,176	262	220	2,813	1·69
30	Professional	230	226	486	109	87	1,138	0·68
No work 31	Ill and no occupation	154	151	313	70	59	747	0·45
32	Independent	107	105	172	38	40	462	0·28
Total of	male heads of families	(31,474)						
Females.								
33	Semi-domestic employment	1,030	—	1,552	346	—	2,928	1·76
34	Dress	350	—	522	117	—	989	0·59
35	Small trades	314	—	505	113	—	932	0·56
36	Employing and professional	55	—	94	21	—	170	0·10
37	Supported	213	—	329	74	—	616	0·37
38	Independent	164	—	191	43	—	398	0·24
Total of	female heads of families	(2,126)						
39	Other adult women	—	—	—	—	—	9,784	5·88
	Total........	33,600	30,866	65,332	14,791	12,020	166,393	100·00

Classes. POPLAR.

Divided into Classes according to Means and Position of Heads of Families.

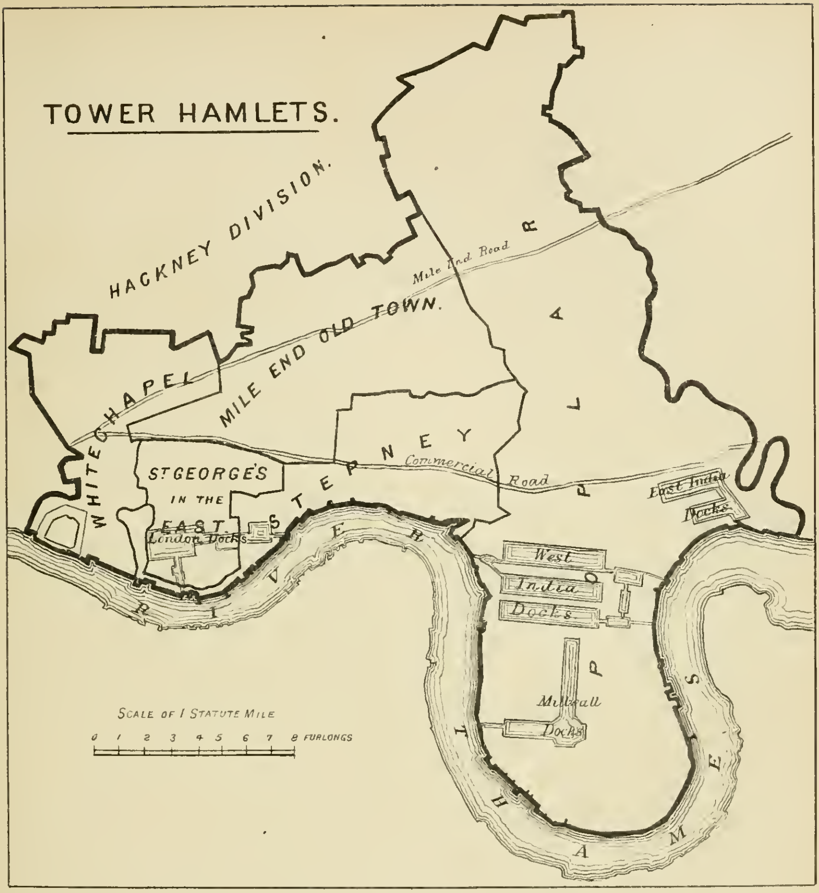
Section.	A. Lowest Class.	B. Casual and Very Poor.	C. Irregular Poor.	D. Regular Minimum.	E. Regular Ordinary.	F. Highly Paid Labour.	G. Lower Middle.	H. Upper Middle.	Total.
1	1,533	—	—	—	—	—	—	—	1,533
2	—	12,875	—	—	—	—	—	—	2,875
3	—	1,130	2,823	—	585	—	—	—	4,538
4	—	—	—	13,370	—	—	—	—	13,370
5	—	131	—	2,562	13,835	—	—	—	16,528
6	—	—	—	—	—	6,317	—	—	6,317
7	—	1,050	1,066	1,950	7,554	834	—	—	12,454
8	—	830	756	1,700	6,111	675	—	—	10,072
9	—	465	783	1,452	10,284	1,125	—	—	14,109
10	—	246	445	445	3,284	2,189	—	—	6,609
11	—	350	624	624	1,773	443	—	—	3,814
12	—	108	186	186	1,964	—	—	—	2,444
13	—	46	—	80	1,517	2,113	—	—	3,756
14	—	73	—	410	879	—	—	—	1,362
15	—	84	—	146	2,793	—	—	—	3,023
16	—	84	—	147	2,778	—	—	—	3,009
17	—	159	280	—	5,285	—	—	—	5,724
18	—	55	47	48	1,809	—	—	—	1,959
19	—	153	480	—	1,091	—	—	—	1,724
20	—	—	—	—	454	975	597	136	2,162
21	—	—	—	—	—	—	204	203	407
22	103	104	453	—	614	—	—	—	1,274
23	—	26	175	—	527	—	131	—	859
24	—	54	27	409	2,145	1,398	568	—	4,601
25	—	—	—	—	—	—	1,190	1,190	2,380
26	—	—	—	12	40	234	286	—	572
27	—	—	—	—	44	191	595	325	1,155
28	—	75	163	611	2,864	1,832	1,018	223	6,786
29	—	—	—	—	—	—	2,813	—	2,813
30	—	—	—	—	—	—	—	1,138	1,138
31	—	273	474	—	—	—	—	—	747
32	—	—	—	—	—	—	462	—	462
33	—	1,084	1,177	—	667	—	—	—	2,928
34	—	306	—	439	244	—	—	—	989
35	—	288	167	168	309	—	—	—	932
36	—	—	—	—	—	—	170	—	170
37	—	75	—	48	493	—	—	—	616
38	—	—	—	—	—	—	398	—	398
39	103	1,260	630	1,550	4,364	1,145	530	202	9,784
Total....	1,739	21,384	10,756	26,357	74,307	19,471	8,962	3,417	166,393
Per cnt.	1·03	12·84	6·45	15·81	44·69	11·76	5·38	2·04	100·00

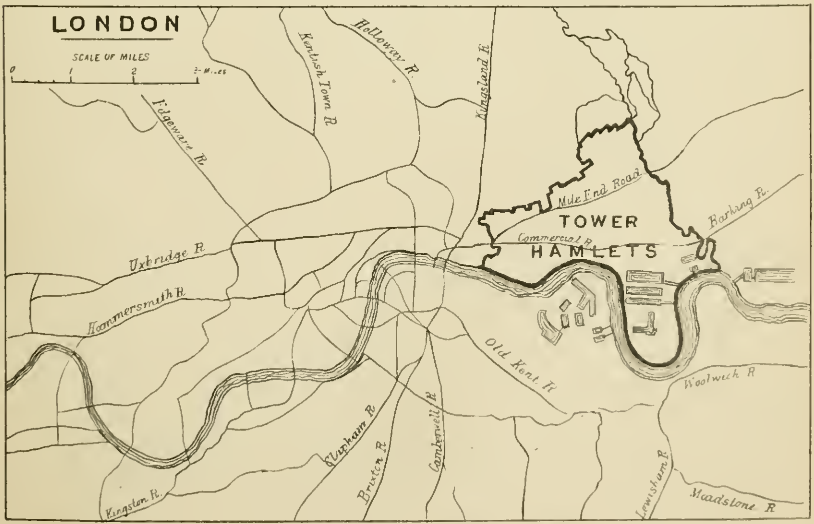
V.—*Description by Districts.*

The Tower Hamlets School Board Division comprises five registration districts or unions, viz., Whitechapel, St. George's-in-the-East, Stepney, Mile End Old Town, and Poplar.

Whitechapel Union lies along the city boundary from the Tower to Norton Folgate, and includes the sub-districts of Spitalfields, Mile End New Town, Whitechapel, Goodman's Fields, and Aldgate. It has a population estimated to amount at the present time to 76,000, of whom nearly two-fifths appear to be Jews. There are no factories of any importance in the district. The manufacturing industries, including a remnant of the old Spitalfields silk weaving, are carried on in the homes or in the "home workshops," which I describe later on. There has been of recent years a great change in this district by the demolition of bad property. There are still vile spots containing dwellings absolutely unfit for human use, but quite enough has been written by others on this subject. A sure and steady improvement in this respect is taking place. Much has been done; the railways have cleared some parts, the Board of Works other parts. The transformation goes slowly on, handsome new blocks of buildings occupying the sites of former slums; the old residents are scattered, and, though they carry contamination with them wherever they may go, they never again create (so testimony has it) such hotbeds of vice, misery, and disease as those from which they have been ousted. Many people must have altogether left the district, as the population showed a decrease of 5,000 between 1871 and 1881; but with the completion of the new buildings the numbers have again reached the level of 1871. Probably few of those who leave return; but it may be doubted whether those whose houses are pulled down are the ones to leave the neighbourhood. It is not possible to say exactly how an ebb and flow of population works. It may be the expression in large of much individual hardship; but I am more inclined to suppose that pulling down A's house drives him into B's quarters, and that B goes elsewhere to his great benefit; when the new buildings are ready they do not attract B back again, but draw their tenants from the surrounding streets, getting tenants of the stamp of A or B, according to the accommodation they offer; the vacant places are then taken by quite new comers (mostly poor foreigners in Whitechapel), or by the natural increase in the population. The clearances have been principally confined to Whitechapel and St. George's, the rebuilding almost entirely to Whitechapel.

St. George's-in-the-East, consisting of the sub-districts of St. Mary, St. Paul, and St. John, includes the London Docks,





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but is hemmed in on the river side, and cut off from the Katherine Docks by Wapping, which is counted as part of Stepney Union. Its population was 48,052 in 1871, and fell (owing to demolition) to 47,157 in 1881. The demolitions have continued, some very bad quarters having been cleared; but little rebuilding has been done, and I estimate the present numbers at 45,500.

Stepney, consisting of the sub-districts of Limehouse, Ratcliff, and Shadwell (including Wapping), has nearly two miles of river frontage, and is intersected by the Regent's canal. Its population was 57,690 in 1871, 58,543 in 1881, and if it has increased since 1881 in the same proportion as the school children, must now be 62,000.[1]

Mile End Old Town is divided into Eastern and Western sub-districts. Its population was 93,152 in 1871, 105,613 in 1881, and may now be estimated at 112,000. The Western district includes a long tongue running in between Whitechapel and St. George's-in-the-East, to the north of the Commercial Road, and containing a semi-Jewish population similar to that of Whitechapel. Even here the old part ends with the New Road, and all the rest of Mile End Old Town has few, if any, traces of antiquity left except its name. Its streets, even the narrowest, look comparatively wide to anyone who has been exploring Whitechapel; the air is fresh, and the squares and other open spaces are frequent.

Poplar consists of the subdivisions of Bow, Bromley, and Poplar. Bow includes Old Ford, and Poplar itself includes Blackwall and the Isle of Dogs. In all, it is a vast township, built, much of it, on low marshy land, bounded on the east by the river Lea, and on the south by a great bend of the Thames. The melancholy Isle of Dogs has been transformed into an isle of docks. In the north-west corner a large space, extending into the Hackney division, has been turned to good account in forming Victoria Park. In North Bow and other outlying parts there is a great deal of jerry building: desolate looking streets spring into existence, and fall into decay with startling rapidity, and are only made habitable by successive waves of occupation; anything will do so that the house be run up; any tenant will do who will give the house a start by burning a little coal in it; the first tenants come and go, till one by one the houses find permanent occupants, and the street settles down to respectability and rents rise; or a street may go wrong and get into such a position that no course short of entire destruction seems possible.

Among the early troubles of these streets are fevers, resulting, it is said, from the foul rubbish with which the hollow land has been levelled. The district has had many troubles to live down, and is living them down with much steady courage.

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[1] This seems an improbable increase, and needs confirmation. It would imply greater crowding, as there has been little new building.

Comparison of the different Districts included in the Tower Hamlets Division of London.

Table of Percentages.

Sections.		Whitechapel.		St. George's-in-the-East.		Stepney.		Mile End Old Town.		Poplar.		Tower Hamlets.	
1 Lowest class			2·85		1·64		1·21		0·65		0·92		1·28
2 Casual	Labour	18·16	4·12	35·41	9·50	38·62	10·90	22·75	2·91	32·23	7·74	28·85	6·59
3 Irregular			1·99		5·88		3·34		2·18		2·73		2·86
4 Regular, low pay			2·59		4·30		4·71		2·84		8·03		5·09
5 Regular ordinary			8·63		12·54		14·76		12·43		9·93		11·24
6 Foremen			0·83		3·19		4·91		2·39		3·80		3·07
7 Building....	Artisans	9·71	1·80	11·52	2·83	19·01	4·18	19·68	5·57	25·99	7·48	19·49	5·21
8 Woodwork			2·53		2·82		5·39		5·20		6·06		4·87
9 Ironwork			1·23		2·04		5·90		3·58		8·48		5·15
10 Sundry			4·15		3·83		3·54		5·33		3·97		4·26
11 Dress		24·84	18·23	15·02	10·34	3·23	1·29	9·76	5·34	3·76	2·29	9·63	6·24
12 Food, &c.			6·61		4·68		1·94		4·42		1·47		3·39
13 Railway			0·68		0·54		0·52		0·83		2·26		1·26
14 Roads			0·90		0·88		0·66		1·68		0·82		1·02
15 Shop assistants			1·54		1·45		1·50		3·58		1·82		2·12
16 Sub-officials			1·51		0·30		1·74		1·87		1·81		1·62
17 Seamen			0·18		2·86		2·77		1·32		3·44		0·25
18 Other wage			0·52		0·88		0·72		1·49		1·18		1·05
19 Home industry			1·66		1·13		1·60		1·78		1·03		1·41
20 Small employers			5·31		1·55		1·98		3·08		1·30		2·49
21 Large ,,			0·61		0·30		0·39		0·47		0·25		0·38
22 Street sellers			3·87		1·23		1·42		1·22		0·77		1·51
23 General dealers			4·05		1·20		0·57		2·32		0·52		1·60
24 Small shops			4·23		4·80		2·80		2·89		2·76		3·24
25 Large ,, ...			2·45		1·68		2·17		2·29		1·43		1·93
26 Coffee houses....			0·67		0·78		0·68		0·22		0·34		0·46
27 Licensed ,, ...			1·02		1·18		1·26		0·93		0·69		0·93
28 Clerks, &c.........			1·84		1·71		3·42		5·33		4·08		3·70
29 Sub-professional			0·59		0·44		1·34		1·45		1·69		1·29
30 Professional			0·25		0·20		0·66		0·56		0·68		0·53
31 Ill, &c.			0·60		0·31		0·28		0·27		0·45		0·39
32 Independent			0·06		0·22		0·21		0·37		0·28		0·25
Females.													
33 Semi-domestic			1·50		2·72		1·56		1·71		1·76		1·77
34 Dress			0·64		1·49		0·90		1·24		0·59		0·88
35 Trades			0·66		0·91		0·59		0·46		0·56		0·59
36 Employing........			0·11		0·16		0·06		0·18		0·10		0·12
37 Supported			0·44		0·24		0·46		0·38		0·37		0·38
38 Independent			0·09		0·05		0·21		0·27		0·24		0·20
39 Other adult women			8·46		7·20		7·46		8·97		5·88		7·38
			100·00		100·00		100·00		100·00		100·00		100·00
Total population....			73,518		44,582		62,063		110,321		166,393		456,877
Area (in statute acres)			378		243		462		679		2,335		4,097

I have thought best not to burthen this table with the actual numbers in addition to the percentages, but have given the totals to which the percentages apply.

The districts are very unequal in the numbers of their inhabitants, and still more so in area, nor are they less so in the character of the population. I cannot hope to make the rows of figures in this table as luminous and picturesque to every eye as they are to mine, and yet I am not content without making an attempt to do so. Each district has its character: in Whitechapel are to be found most of the common lodging houses accommodating the strange bed-fellows whom misfortune brings together, and lower still there are the streets of furnished rooms and houses where stairways and corners are occupied by those without any other shelter. Whitechapel is Tom Tiddler's ground, the Eldorado of the East, a gathering together of poor fortune seekers: its streets are full of buying and selling, the poor living on the poor. Here just outside the old city walls have always lived the Jews, and here they are now in thousands, both old established and new comers, seeking their livelihood under conditions which seem to suit them, on the middle ground between civilisation and barbarism.

Of the population of Whitechapel 18¾ per cent. appear as employed in making clothes, 6½ per cent. in cigar making and food preparation, 8 per cent. are street sellers and general dealers, and 5¼ per cent. are small employers, mostly of the poor "sweater" type. All these are employments of the Jews.

Stepney on the other hand has few, if any, of these—only 7¼ per cent. all told against 38 per cent. in Whitechapel. Stepney is essentially the abode of labour: here the casual labourers reach their maximum of nearly 11 per cent. of the population, and have their homes in a mass of squalid streets and courts; and here are to be found also the largest proportions of regularly paid labour, viz., 24⅓ per cent. of the population. In all, nearly 39 per cent. of the population of Stepney are counted in the five sections of labour against only about 18 per cent. so counted in Whitechapel.

Midway between Whitechapel and Stepney, in character as well as geographically, comes St. George's-in-the-East. Doubtless a line might be drawn which would fairly divide the population of St. George's into two portions, the one side falling naturally with Stepney and the docks, the other side with Whitechapel and the Jewish quarters. The makers of clothes, 18¼ per cent. in Whitechapel, become 10⅓ per cent. in St. George's, and fall away to 1¼ per cent. in Stepney. The preparers of food and tobacco, 6½ per cent. in Whitechapel, become 4¾ per cent. in St. George's, and drop to about 2 per cent. in Stepney. On the other hand, the casual labourers, who are 11 per cent. in Stepney, stand at 9½ per cent. in St. George's, and fall away to 4 per cent. in Whitechapel; and so also with the other classes of labour, except those with irregular pay, who seem to bear a larger proportion to the population in St. George's than anywhere else. On the whole, it may be said that St. George's shares in the poor characteristics of both her neighbours, and is more entirely poverty stricken than either.

Passing from Whitechapel to Mile End Old Town we more quickly get rid of the foreign element, but it is to be found, as already described, in the westernmost angle or tongue.

Mile End Old Town does not lend itself to sensational description of any kind.[2] It contains very much that is quietly respectable, and very little extreme poverty; the remark "nothing to be called "poverty here" occurs continually on my notes for the streets of this district. The sections which reach their maximum here are shop assistants, clerks, subordinate officials, and persons of independent means; and wherever the proportion runs exceptionally high, it is always on the side of respectability. The small employers in this district, who are numerous, are not usually of the sweater class, but master builders, painters, &c., employing a few hands; and throughout it is true that not only are there fewer of the poor trades, but such as there are are better off.

Poplar is too large a district, and too various, to be properly treated as one; it is however a single registration district. It contains, taken together, a fair contingent of labour, the largest proportion of artisans, the largest proportion of railway servants, of seamen, and of the professional classes; in clerks it stands next to Mile End. Its poor consist largely of those in regular employment at a low wage (Section 4), of whom nearly two-thirds out of all Tower Hamlets live in Poplar. It contains by far the largest percentage of the artisan class, who increase in numbers as we go eastwards. In Whitechapel (excluding dress and food) they are 9¾ per cent., in St. George's 11½ per cent., in Stepney they are 19 per cent., in Mile End (lying parallel to Stepney) they are 19¾ per cent., while in Poplar they account for 26 per cent. of the population.

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[2] Mile End is remarkable, however, for the number of brothels to be found amongst its otherwise respectable streets. These houses probably seek a quiet neighbourhood, and draw their supporters from large areas. The characteristic forms of East End prostitution are more rough and ready, and are exhibited to an astonishing extent in Stepney and Poplar. Vice is said to be more bestial still in Whitechapel, and St. George's is very bad in its own way.

On the whole the part played by prostitution socially and economically in some very poor districts, and among people none of whom are other than poor, is greater than would be generally supposed.

VI.—*Special Subjects.*

The subjects which claim special treatment in connection with this district are:—

(1.) Employment at the docks.
(2.) The Jewish settlement and immigration.
(3.) The "Sweating" system and middle men.
(4.) Working women.
(5.) The unemployed.

The two last are questions common to the whole of London.

It would not be possible to deal adequately with these subjects here; each would be enough in itself for a whole paper, and I shall content myself with indicating the position of each in connection with my subject.

(1.) *Employment at the Docks.*—The docks situated in Tower Hamlets are the London and St. Katherine's, East and West India, and the Millwall. The Victoria and Albert, and the Tilbury, though they are owned and managed by the London and St. Katherine's and the East India Docks respectively, do not draw their labour mainly from this district; and while the opening of these docks has diminished the amount of employment offered, more especially by the East and West India Docks, I am informed there has been no great attempt on the part of the dock labourers to follow the work down river by changing their homes. These outlying docks seem to have largely drawn fresh labour from outside. The character of the men employed, and of their work, may not be greatly different from that of the other docks, but it is probable that the new docks afford more constant work, as there is less money to be picked up out of odd jobs, charity, and the work of the wives, than in our district. Some of the regular men employed in the outlying docks are to be found living in the Poplar district; stevedores go down to their work by train wherever work offers, and some casuals will go down when these docks are busy, living temporarily in the neighbourhood while the work lasts. But I believe most of the men employed in them have their homes near, and I cannot count these docks as drawing largely on the casual labour supply of the Tower Hamlets.

The system of employment in the London and St. Katherine's Docks is somewhat different from that of the East and West India Docks, but the results as to the labour employed are substantially the same. In these docks there are three grades of employés; first, the labour foremen, samplers, permanent labourers (acting frequently as gangers), numbering, with the police, about 500 in each dock; secondly, labourers, who by regular work or preference gain a constant low wage, of whom there may be 900 in the London and St. Katherine's, and 500 in the East and West India; thirdly, true casuals, of whom the numbers employed vary from 500 to about 3,000 in the London and St. Katherine's, and perhaps 200 to 2,000 in the East and West India.

In the East and West India Docks the foremen class are always weekly wage earners, not paid for overtime; while the labourers are paid at the rate of 5*d.* an hour, with a plus on the amount of work done.

In the London and St. Katherine's two systems are employed, the work being done partly by day work at 5*d.* an hour, and partly by contract piece work, for which the labourers are supposed to get 6*d.* an hour. The foremen in the first case receive definite wages, and in the other act as independent labour contractors; the true casuals in both supplement the regular and preferred labourers, and for the most part show varying degrees of unfitness, either in lack of strength and dexterity, or want of persistency, or in general untrustworthiness. On this point all the dock companies agree, that they lose heavily on casually employed labour, and regret the irregularity of their trade, which seems to make the employment of it inevitable.

In the Millwall Docks the whole work is done by contract: the labour contractors employ gangs of permanent men guaranteed 21*s.* per week, and said to average 32*s.* all the year round. These strictly permanent men, with the police, &c., amount to about 250. The other hands above the casual level, who may number about 1,000, though irregularly employed, get fairly constant employment on the whole, shifting from contractor to contractor according to the work offering. For both regular and irregular it is piece work, pretty well paid, and, in the case of timber, needing special training. These men therefore are different in their characteristics from those employed in the other docks, resembling in some ways the stevedores. As might be expected, the labour contractors of the Millwall Docks lose heavily when forced to employ true casuals. They reckon that a gang of casuals at grain work can only do one-fourth of the work done by a permanent gang in the same time.

A general characteristic of dock labour is the extreme irregularity of hours: the substitution of steamers for sailing vessels is said to have increased this irregularity, though it has diminished the fluctuations of employment according to the seasons of the year or changes of the wind.

The keen competition between the dock companies and the exigencies of steamship management compel them to discharge immediately and rapidly: therefore a gang of labourers will sometimes work twenty-four hours on end, with short intervals for food; while at other times men will be employed only two or three hours in the day. It need hardly be pointed out that the alternation of over-work and enforced leisure is not favourable to moral or physical health.

The total maximum employment afforded by these three docks for casual men will never much exceed 6,000, the minimum falling as low as 1,500 or 1,000. With this amount of employment must be compared the 10,000 men who are counted as chiefly depending upon it for their week's income.[3]

(2.) *The Jewish Settlement and Immigration.*—The Jews are to be found scattered over the larger part of the Tower Hamlets district, but are concentrated in great numbers in Whitechapel, and the adjoining portions of St. George's-in-the-East and Mile End. The total number is a disputed point. An estimate, working from the statistics of Jewish burials, makes the number of Jews in all London about 50,000, and places 34,000 of these in the East End.[4] These figures depend on the death-rate, which is assumed as 23 per 1,000 for the whole of London, and 25 per 1,000 for the East End. The best estimate I can make myself gives a total of fully 40,000 Jews in the Tower Hamlets; and as Bethnal Green must contain a considerable number, I get about 45,000 as the total of East End Jews. I do not wish to fly in the face of the estimates given above, but I question whether the assumed death-rate can be taken as conclusive in a population so largely and recently recruited by immigration, and hence not necessarily containing its due proportion of different ages. I lay some stress on this point, because arguments and inferences have been drawn from a comparison between the numbers of poor Jews relieved, and the total number of the community, and between the infant and adult mortality, which would be erroneous if what I suppose is true, viz., that the adult deaths are below the normal rate, and the total population is greater than supposed.

It is not difficult to recognise the Jews; the School Board visitors know them well. They congregate together; whole blocks of buildings and whole streets are recognised as theirs; in other streets they may count as half the population, and then again there are those that are scattered. To form my estimate of the

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[3] *The maximum and minimum of employment at these docks is not the addition of the figures for each dock separately, as one dock may be busy when another is slack.*

[4] Jewish deaths in 1886:—

London	Burial Society's return	1,047		
	others estimated	109		
		1,156	at 23 per 1,000	= 50,261
East End separately........................		850	,, 25 ,,	= 34,000

numbers I have classified the streets, and taking the inhabitants as all Jews where Jews prevail, and half Jews for the mixed streets, and omitting altogether those who are to be found scattered among the Christians, I have obtained a proportion of families which indicate a population of over 40,000.[5]

If I am right on this point, the other facts fall into their places; and to this point I venture to think further inquiry should first be directed. Meanwhile I can only give what I have seen and heard on the subject for what it may be worth.

The Jews living in this district, whatever their number may be, are divided by nationality as well as by trades, and the divisions are strongly marked by language, by character, and by the locality in which the various sections live. By forms of religion also they are separated into two main bodies; one called "Spanish" (though little or nothing of Spanish nationality remains), whose numbers are small, but who have a complete organisation of their own; the other usually called "German," and represented by the United Synagogue, and the Jewish Board of Guardians. There are few Jews of essentially German birth in London, though there are many who speak German as their native tongue. The two principal nationalities are Dutch and Poles. The Dutch may belong to either the Spanish or German Synagogue, the Poles all belong to the United (German) Synagogue. The Poles may be divided into German (including Austrian) and Russian Poles, according to the part of the old kingdom of Poland from which they come. The languages spoken by the foreign Jews are Dutch, German, and a patois made up of a Polish-German and Hebrew, which forms a common tongue for the whole Polish body. In addition there are the English Jews, those whose families have been long settled here, and whose language and ways are English.

The English Jews are mostly well-to-do, or at least above the line of poverty; their employments are of many kinds, and they are in no way peculiar to the East End of London. The Dutch are also old established, and not very poor; they live in Spitalfields, and their principal employment is cigar making. The

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[5] The numbers shown by this estimate are—

Whitechapel	28,790
St. George's	5,880
Mile End	7,750
	42,420

including Bethnal Green, the number of East End Jews will be fully 45,000.

If I had foreseen that it would have been useful, I could have classified the Jews throughout separately: unfortunately I did not do so, and thus have been obliged to fall back on a classification by streets, to show their numbers and condition separately from the rest of the population.

German speaking Jews are a mixed set, including rich, poor, and very poor; old established, and new comers; and they are of many occupations: bread bakers, sugar refiners, shoemakers, tailors (more of these than anything else), and dealers in clothes, furniture makers and dealers in furniture, street sellers and general dealers, small employers, shop keepers, importers, and wholesale dealers. They are a striving, hardworking set of people, and, on the whole, prosper. I do not know that it is possible to draw a distinct line between these and the Russian Poles. It may be that each portion of old Poland yields much the same material, and that the division made between German and Polish Jews depends rather on the degree of poverty and ignorance than on any question of origin. Nevertheless the "Russian Poles" are recognised as a separate, and now very large, section of the East End population. Most of them are employed in cheap tailoring. They arrive destitute, often without the knowledge of any trade, and for a long time they know no language but their own; they naturally resort to the quarters already occupied by those speaking the same language, and perhaps hailing from the same districts abroad, or connected by relationship or acquaintance. Their compatriots are hardly better off than themselves, and can only share with the new comers their wretched accommodation and ill paid work. The result is an aggravation of every evil; the condition of the houses becomes indescribable, and the slavery of the sweating system is intensified.

The numbers now arriving are less than they have been, but certain districts are overrun, and the effect has been to flood many established trades with unhealthy cheap labour. Miserably destitute themselves, they also increase the destitution of their own people, and of our own people. The Jewish Board are fully cognisant of this deplorable state of things, and have made great exertions to check the influx, and to send back, or send further, those who come; the great weight of the evil falls on them and on their people.

The poor Jews rarely apply to our guardians, except for medical relief, and the Charity Organization Society hands over to the Board all Jewish cases.

The total amount given in one form or other by rich Jews to their poor brethren is very large, and it is worthy of serious consideration (both by Jew and Christian) whether such bounty does not tend to increase the numbers of those it aids to live, without permanently benefitting them at all. It must however be said that many of the Jewish endowments are provided to maintain the religious observances and position of the poorer members of the synagogues, and for education. Of actual relief most passes through the hands of the Jewish Board of Guardians, a very carefully managed charitable institution, combining in itself various forms of relief and organised charity, with functions very different from those of our poor law authorities.

The numbers receiving relief last year at the hands of the Board were very large (14,000), but were swollen by the exceptional state of things connected with the Mansion House fund,[6] and the total expended in relief, though a large sum (11,000*l.*), is not very much among so many. It is hardly reasonable to count as a pauper every poor Jew who receives some assistance.

These foreign Jews are straight from the pressure of grinding despotism; some may add nihilism and the bitterest kind of socialistic theories to very filthy habits; but the meek and patient endurance with which they live their hard lives, and their ready obedience to the law, do not suggest any immediate fear of violent revolutionary activity on their part. They seem capable of improvement, and so far have improved. It may take them "several years to get washed," but if we compare the new comers with those of the same race who have been settled here some time, the change is very marked. The streets in which the former herd on arrival become more foul than ever before, but those occupied by the latter are quiet and orderly.[7]

The Jewish wives of every grade seldom work for money; they attend to cooking and household duties, and seem to be careful housewives.

All round these people have the characteristics of their race, good and bad; laborious and frugal to a fault; well schooled in the science of how to live on next to nothing, rising early and working late, they, as their numbers increase, elbow out their less thrifty gentile fellow workers. They show strong family affection, and the bond of race and clan creates exclusiveness.

Whether such people ought to be refused settlement in England I will not attempt to say. The nation, as a whole, probably does not lose by them; they produce more than they consume. But other considerations are involved, and at any rate the immediate hardship on those whose earnings are depressed is very great.

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[6] I am informed that the first quarter of 1887 shows a very marked diminution in numbers of new cases compared to 1886:—

January	190	as against	217	cases.
February	119	,,	232	,,
March........................	77	,,	591	,,

[7] It is said that this process of improvement can no longer be counted on; that those who arrive now find familiar surroundings here, coming from a Ghetto to a Ghetto, and will retain and perpetuate here the habits of Russian frontier life. It is thought that we may hope to assimilate those already here, but not an unlimited number.

As to poverty, the results of a classification of the streets show roughly that out of over 40,000 about 15,000 may be called quite poor, a further 15,000 moderately poor, and 10,000 comfortably or well off.

(3.) *The "Sweating System" and Middlemen.*—This is closely connected with the Jews, and especially the poor Jews. The system has its base in the character of those whose labour it employs. It employs those who are incapable of the disciplined factory system, and it is hard to see how house or home employment could be managed successfully on any different plan. In boot making the boot factor gives out his materials to the middlemen, who are usually themselves workmen, doing the most skilled part of the work, and employing a few others to do the easier parts; these men they teach. Each "greener" who learns the whole trade strives to take the leading place and get the larger, though still small, pay that goes with it. Character as well as skill on the part of the small contractor is needed, because of the materials entrusted to him, and even more to secure punctuality, and to keep his workpeople together: to get the work finished in time is an important part of the middleman's duty, and probably the wife assists in this. On the whole these men work hard for what they make. The idea that they are useless bloodsuckers is altogether devoid of truth, as is another idea that they are merely used as agents of the rich in oppressing the poor. Given a quantity of ignorant, poverty-stricken, unskilled men, scattered in their wretched homes in the purlieus of a crowded city, and what other plan could bring work to them at all? In tailoring the system is much the same, but worked on a larger scale, and there are sub-contractors, and even sub sub-contractors, as well as contractors.

The system is worked in a variety of ways, but all alike result in long hours of work for bare subsistence. That which is most particularly connected with the poor Jews may be called residential. The master houses and feeds his two, three, or four men: he and his wife live in one room, the men work, eat, and sleep in another; the wife cooks for all. The master gets the materials from the shop for which he works, and returns the finished article. He is the skilled man, arranges the work for the others, and does the more difficult parts. Slightly removed from this is the employment of men who sleep elsewhere but come in to work, and this extends to a semi-factory system more particularly described below. Another plan, which may be called "home employment," consists of giving work out: those who do this are essentially middlemen; they may, or may not, work at the trade themselves; the more work they undertake the less they can do of it themselves.

Then again these different systems are mixed; some of the men may reside, and some may come in to work; some part of the work, that done by women for instance, may be put out, and the rest done in the middleman's house.

It is a very elastic system, which adapts itself to the conditions of city life, to the habits of the people, and to the peculiarities of the various industries so worked.

The evils of the state of things which creates such a system, as well of the system which tends to perpetuate and intensify such a state of things, are most serious; but they are not to be touched by denouncing the middlemen and gibbeting them as sweaters. Nor is the foreign element to be debited with all the mischief. There seems to be a tendency against organised factory labour in London. Factory work, for many reasons, succeeds better in the provinces, and so leaves London; by leaving, it further increases the quantity and decreases the value of labour which seeks any kind of employment for a living; and this is the material out of which the sweating system is constructed. Other causes tend in the same direction: it is not only foreigners who do not readily take to factory employment; many men prefer the greater liberty of working at home; they may have to work as long or longer, but they can keep their own hours, and can get help from their wives and children. The result on trade and profits of the struggle for work is a very cutting competition which pushes prices down, and probably deteriorates the quality of work; the labourer suffers, and it is doubtful if the consumer gains in proportion.

Between factories proper and home work lie a class of home workshops: these are usually built in the yard or garden behind the dwelling house, sometimes connected with, and sometimes detached from the house. The earlier specimens to be seen are poor outbuildings, but those of recent construction look well enough. This plan seems to be on the increase, and there is no reason why it should not be worked in a respectable way. It is applicable to industries where no power machinery is needed, and is a great improvement on employment in city houses.

(4.) *Working Women.*—In Section 39 of my table I include unmarried women over 20, and widows without families.

There are some few children under school age belonging to, and supported by, these women, but not many who do not share the home of some scheduled family.

I have little information as to these women, and I am very glad to know that an inquiry into the conditions under which they live and work is now being undertaken by competent hands.[8]

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[8] The factory department of the Young Women's Christian Association has an inquiry on foot into the condition of life and employment of working women and girls.

Girls from school age to 20 are here passed into the sections with the families to which they may be supposed to belong. There are some servant girls under 20 and other exceptional cases in which young girls live independent lives, but the overwhelming majority of young girls in this district live at home and their earnings are subsidiary to those of the head of the family. I do not know to what extent this is also the case with the women over 20, but I know that young widows, scheduled here as heads of families, are very often to be found sharing their father's home; I imagine this to be still more so with those who have no children, and perhaps more again with those who have never been married. Sisters share their brothers' homes, and compound households are formed of many sorts for reasons of economy or kindness.

I am thus inclined to believe that the women who live independent lonely lives, or even those who club together, women with women, are comparatively few; those who do so are at a great disadvantage compared to such as only need to make enough to help the common life of the home; and it is important, if possible, to know what the proportion of them is.

In my tables I assume that every class has its proportion of unmarried women who share its hardships or its advantages.

As to earnings, many women are deplorably ill-paid, but it is noteworthy that there is not a uniform low level of pay; one young woman will work endless hours for less than 1*s.* a day, and even fail to get regular work at that price; while another, working also with her needle, may make "as much as father and mother "put together," taking her work from different shops, so that no one shop may know the total amount earned, and having more work offered than she can do. Such a case may be exceptional, but a great variety in rates is constantly to be noted; and I venture to suggest to those who are conducting the inquiry I have referred to, that to learn why so much more is paid to some women than others, or for particular sorts of female work, would be an important step in their inquiry.

(5.) *The Unemployed.*—Though no attempt is here made to count or classify those who are "out of work," something may be done towards it if we can define what we mean by "unemployed." In one sense the whole of Section 1, half Section 2, and about one-third of Section 3 must be counted, amounting at once to 10,000 adult men in this district; and to this number must be added a percentage of the artisans. These are the plentiful materials from which a mass meeting of the unemployed may be drawn. In another sense it is only those who usually have regular work, and now have none, who are "out of work."

As to the 2,987 adult men of our Section 1, or whatever their numbers in the Tower Hamlets may be, it is not only quite certain that they do not really want work, but also that there is very little useful work for which they are fitted. Whatever the duty of society may be towards these men, the offer of work has been shown over and over again not to fulfil it; the work is either refused or soon dropped, and the men return to more congenial pursuits. Work may be of use as a test, but that is all; and the problem of the "unemployed" only touches those of them who, by standing the test, prove themselves to belong to Section 2.

As to Section 2, with its 9,842 adults, there are weeks when every one is or might be at work, and other weeks when but few of them do a stroke; such is their life. Their position can only be altered for the better by a greater regularity of work, or by a higher scale of pay; they are not unemployed, they are badly employed.

It is much the same with most of Section 3; a man who gets good work through the summer, and is somewhat short of work in winter, is not even to be called badly employed, unless he does so badly in summer as not to be able to face the winter slackness.

It would be pedantic to stretch this argument very far; the badly employed, those who might very well accomplish in the due seasons of their employment more work than is offered them, are, I think, truly unemployed to that extent. They are, however, very difficult to count, because for many of them an entire year is the shortest unit of time that will serve to test the shortness of work; and because, finally, we have to deal not with individuals out of work, but with a body of men, of whom some are superfluous, though each individual may be doing a share of the work. The total number of the superfluous is the true number of the unemployed.

Hence I conceive that to inquire into the condition of the people by groups of trades is the only way to throw any clear light upon this subject. No plan but this will cover the ground completely, or show the facts at all as regards the definitely unemployed, viz., those whose trade should be, and has been regular, who now look for work and find none. These men make no outward sign of distress, but their numbers are said to be large all over London, as well as in the Tower Hamlets. I do not for a moment suppose the number of these to be large compared to the number regularly employed in the same trades, but I can well believe that as a percentage it is considerable, and as a total the figure may be greater than can be faced with equanimity, or than the organisation of industry ought to require.

Connected with this lack of employment is the silent want I have already referred to, and the gradual impoverishment of respectability which recent Government inquiries seem to point to.

As to the quality of these men as workmen, I do not want to make too much of such inferiority of skill or character as may sometimes have cost them their place or lost them a chance, when places and chances are not plentiful. I do not doubt that many good enough men are now walking about idle; but it must be said that those of their number who drop low enough to ask charitable aid rarely stand the test of work. These cannot keep work when they get it; lack of work is not really the disease with them, and the mere provision of it is therefore useless as a cure. The unemployed are, as a class, a selection of the unfit, and on the whole those most in want are the most unfit. This is the crux of the position.

VII.—*The Basis and Accuracy of the Figures given in this Paper.*

The steps by which my conclusions have been reached, and the bases of the figures given, are stated very fully in the appendix. The whole structure is built on three assumptions:—

(1.) That the numbers of married men with school children in each section, imply a similar proportion in the same sections of married men without school children, and of other male adults. This, because the choice of employment is made before the epoch of school children, and the period of employment prolonged long after; the fathers of the school children of the day are but a section of a block which contains, all the while, old men and young, married and single, those with children, and those without, in every trade. Hence, having scheduled the heads of families with school children, I feel justified in dividing the other male adults in similar proportions.

(2.) That likewise the number of children of school age in each section implies the existence of brothers and sisters older and younger to be found living under the same home conditions. Hence I have added children and young persons of 13—20 to each section in proportion to the number of school children scheduled.

(3.) That the condition as to poverty of those with children at school in each section, will safely represent the condition of the whole section; the younger men in some employments, and the older men in others, earn less money than those of middle age who are the fathers of the children at school, but both are at less expense. On the whole, therefore, the condition of the bulk will be better than that of the part we are able to test.

These assumptions fail as to Section 1, where there is neither family nor industrial life of a regular kind; and also as to Section 2, to the extent that casual work is not so much an employment, as the resource of those who have no employment. To meet these failures I have allotted to these sections an estimated proportion from the unscheduled population before proceeding to the apportionment.[9]

The information was mostly obtained during last winter and the early spring, but a whole year was so far as possible taken as the unit of time.

VIII.—*Results to be Obtained from this Form of Inquiry if carried further.*

The imperfections of any results to be obtained from the figures of a single district of London are very evident; it is even impossible to be certain to what conclusions they truly point.

The population of any provincial town, dealt with as a whole, would give a clearer result than that which can be got of the analysis of the half million people with whom I have attempted to deal in this paper, and in addition they could be much more easily dealt with. My only justification for taking up the subject in the way I have done, is, that this piece of London is supposed to contain the most destitute population in England, and to be, as it were, the focus of the problem of poverty in the midst of wealth, which is troubling the minds and hearts of so many people. So that perhaps what is shown to exist here may be supposed to be the most serious thing of the kind anywhere in England, and thus an *à fortiori* argument becomes possible. Beyond this I think it might be practicable to complete the whole of London on the same plan, within a reasonable time, if the results to be got in that way seem worth while to those whose co-operation would be necessary.

I have already touched on the advantages which would result from dealing with the subject under groups of trades as well as by districts. This plan only becomes possible when we have the census figures of occupation to fall back upon, which is not the case except for the whole of London. It is not enough to deal with certain trades, we must put each in its place and arrange to include the whole population in the groups made. The materials for such an analysis and description are even now being collected by the Statistical Department of the Board of Trade, not only for London, but for the whole country, and will no doubt soon be available. It is also probable that the great employers and trade associations, both of masters and of men, would be ready to contribute an account of the condition of their own industry, or separate accounts if their opinions differed, if they knew that these accounts would be used for an impartial statement of the whole condition of trade and employment. Treated in a large way, the inter-connections of various trades would become visible, and the whole picture would become complete, and, as I think, of great value for many purposes.

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[9] Different rates of mortality in different trades or under different conditions may be supposed to increase the number of children under 3 in proportion to those of school age where infant mortality is high, and to increase the number of the old in proportion to the parents of school children where life is prolonged. These tendencies to error act fortunately in opposite directions on my totals.

IX.—*General Conclusions.*

For many reasons I hesitate to draw any conclusions yet. I do not know whether the facts disclosed will be considered surprising, or which of them may be so considered. Many of them have been a surprise to me, and they have too recently emerged from the mass of figures in which for many months they lay hid, for me to have fully grasped their significance. Some points will probably call for reinvestigation, and all need the confirmation and rounding off which can only be had by extending the inquiry to other districts and from separate trade inquiries.

In attempting this work I had one leading idea: that every social problem, as ordinarily put, must be broken up to be solved or even to be adequately stated.

The divisions into which I have thrown the population have been arbitrary, but they may serve to show how complicated the interests are which I have attempted to disentangle. The proportion of the population shown to be above the line of poverty, I make to be 65 per cent., that on the line 22 per cent., while those falling chronically below it into the region of distress are 13 per cent. Of these last a part must be considered separately as the class for whom decent life is not imaginable.

This is a serious state of things, but not visibly fraught with imminent social danger, or leading straight to revolution. That there should be so much savagery as there is, and so much abject poverty, and so many who can never raise their heads much above the level of actual want is grave enough; but we can afford to be calm, and give to attempts at improvement the time and patience which are absolutely needed if we are to do any good at all.

The question of those who actually suffer from poverty should be considered separately from that of the true working classes, whose desire for a larger share of wealth is of a different character. It is the plan of agitators and the way of sensational writers to confound the two in one, to talk of "starving millions," and to tack on the thousands of the working classes to the tens or perhaps hundreds of distress. Against this method I strongly protest, and I do so all the more that I am deeply in earnest in my desire that the conditions under which the mass of the people live should be improved, as well as that of those who now suffer actual distress. To confound these essentially distinct problems is to make the solution of both impossible; it is not by welding distress and aspirations that any good can be done.

It is the sense of helplessness that tries every one; the wage earners, as I have said, are helpless to regulate or obtain the value of their work; the manufacturer or dealer can only work within the limits of competition; the rich are helpless to relieve want without stimulating its sources; the legislature is helpless because the limits of successful interference by change of law are closely circumscribed. From the helpless feelings spring socialistic theories, passionate suggestions of ignorance, setting at naught the nature of man and neglecting all the fundamental facts of human existence.

To relieve this sense of helplessness, the problems of human life must be better stated. The *à priori* reasoning of political economy, orthodox and unorthodox alike, fails from want of reality. At its base are a series of assumptions very imperfectly connected with the observed facts of life. We need to begin with a true picture of the modern industrial organism, the interchange of service, the exercise of faculty, the demands and satisfaction of desire. It is the possibility of such a picture as this that I wish to suggest, and it is as a contribution to it that I have written this paper.

APPENDIX.

The subjoined tables form the basis of the figures I have used. They have been compiled from information supplied by the School Board visitors, combined with the population statistics for each parish contained in the census of 1881. The visitors have particulars of the occupation, &c., of all heads of families who have children between 3 and 13 years of age, and these are shown in the first column of the tables. In addition they recognise a large number of families without children of these ages, but as a rule have no particulars concerning them. These have been apportioned to each section on the basis of those with children and form column two. The third column contains the number necessary to make up the total of married persons given in the census (after allowing for married men in common lodging houses, who have been allotted to the lowest class) and has been similarly apportioned, every married couple being counted as a family, although having no children. The unmarried adults (after a similar allowance from lodging houses) have been apportioned in the same way, and the wives allotted in proportion to the married men. The children aged 3 to 13 (of whom of course the visitors have full particulars) have formed the basis on which all the others under 20 years of age have been allotted to each section. The numbers of poor and very poor have been arrived at by extending proportionately to every family in each section the particulars given by the visitors for those who have school children.

It has of course been necessary to bring the total population up to date, and in order to do this it has been assumed that the numbers have increased in the same ratio as the school children aged 3 to 13. Unfortunately it is not possible to do this by direct comparison with the census, because the latter does not give the number of children 3 to 13, nor do the districts correspond with those of the School Board; but in 1882 (immediately on the publication of the census, and about a year after it was taken) the School Board authorities prepared a special return of these children on the lines of the census districts. The number of such children at that time in the Tower Hamlets was 100,550; whilst for 1886-87 (as ascertained by the present return, which has also adhered to the census districts) the total is 105,031, or an increase of 4,481 in five years. Assuming that the increase between 1881 and 1882 would be one-fifth of this, we have 99,654 as the total of children 3 to 13 for 1881. This shows an increase of 5·4 per cent., and the population at each of the other ages into which it is here divided is supposed to have similarly increased. Allowance, however, has to be made in the case of the inmates of public institutions (which are here excluded from the totals as forming no part of the general population), and also in the case of absent seamen, who are not counted in the census, but have been included in these returns, because, as many of them are keeping up homes here, and supporting wives and children, they undoubtedly form an integral part of the population, which must be counted in any local analysis. It is different, however, with inmates of public institutions, the effect of including whom would be to show a fictitious proportion of the population at certain ages, and in certain classes, as may be judged, for example, from the fact that Mile End Old Town has within its boundaries two workhouses, two infirmaries, and a large parish school, whilst Stepney has no parochial institutions of any kind. A short table will perhaps show more clearly how the total population of the Tower Hamlets for 1886-87 has been arrived at:—

School children aged 3—13 in 1882	= 100,550	
,, 1886-87	= 105,031	
Increase, 1882 to 1886-87	4,481	
Add one-fifth for increase, 1881 to 1882	896	
Increase since 1881	5,377	or 5·4 p. cnt.
Population by census in 1881	= 439,137	
Less inmates of institutions	7,821	
	431,316	
Add 5·4 per cent. for increase, 1881 to 1886-87	23,713	
	455,029	
Add for absent seamen (four-fifths of those scheduled)	1,848	
Total population, 1886-87	456,877	

The figures for each registration district or union have been arrived at in an exactly similar manner. A return of the numbers and ages of the inmates of institutions at the present time (April, 1887) has been obtained, and the proportions are assumed to have been similar in 1881. Four-fifths of the seamen scheduled are estimated to have been at sea at the time.

The number of heads of families given, as already shown, is the total of married men by census. This will really be too many by the number of those among them who happen to have had neither wife nor child with them; but to be set against this are the widowers with children not scheduled in the heads of families. The wives have been allotted without regarding this discrepancy; the effect of which upon the general figures is very slight. It may be added that by way of checking the particulars given by the visitors, a special return of the inhabitants of the principal blocks of buildings in the division and some other special property was obtained from the rent collectors, the results of this test being generally quite satisfactory; whilst, by way of completing the information, the Commissioners of Police kindly placed at my disposal the particulars possessed by their officers as to the numbers and class of inmates of the registered common lodging houses in the districts covered by this inquiry.

The figures in black type are the basis of the tables. The other figures have been apportioned:—

WHITECHAPEL.

Class.		Description.	Heads of Families.			Wives.
			With School Children.	Without School Children. Recognised.	Without School Children. Remainder.	
Males.						
Labour........	1	Lowest class, loafers, &c.	45	32	332	403
	2	Casual day-to-day labour	228	162	110	493
	3	Irregular labour	143	101	51	291
	4	Regular work, low pay	195	138	68	395
	5	,, ordinary pay	619	436	217	1,256
	6	Foremen and responsible work	56	39	20	114
Artisans	7	Building trades	126	88	44	255
	8	Furniture, woodwork, &c.	177	125	62	359
	9	Machinery and metals	90	63	32	183
	10	Sundry artisans	300	212	106	608
	11	Dress	1,261	890	446	2,556
	12	Food preparation	443	313	157	904
Locomotion	13	Railway servants	52	37	18	106
	14	Road service	62	43	22	126
Assistants ..	15	Shops and refreshment houses	110	77	39	223
Other wages	16	Police, soldiers, and sub-officials	105	73	37	212
	17	Seamen	13	9	5	26
	18	Other wage earners	37	26	13	75
Manufacturers, &c.	19	Home industries (not employing)	116	81	41	236
	20	Small employers	327	231	115	662
	21	Large ,,	49	34	17	100
Dealers........	22	Street sellers, &c.	254	180	89	516
	23	General dealers	281	198	98	569
	24	Small shops	310	218	109	630
	25	Large shops (employing assistants)	170	120	60	345
Refreshment	26	Coffee and boarding houses	48	34	17	94
	27	Licensed houses	76	53	27	154
Salaried, &c.	28	Clerks and agents	129	91	46	262
	29	Subordinate professional	40	28	14	81
	30	Professional	18	13	6	37
No work	31	Ill and no occupation	45	32	16	91
	32	Independent	7	5	2	14
			(5,932)	(4,182)		
Females.						
	33	Semi-domestic employment	199	162	—	—
	34	Dress	83	68	—	—
	35	Small trades	78	63	—	—
	36	Employing and professional	17	13	—	—
	37	Supported	61	50	—	—
	38	Independent	14	11	—	—
			(452)	(367)		
	39	Other adult women	—	—	—	—
		Total population	6,384	4,549	2,436	12,376

WHITECHAPEL.

Unmarried Males over 20 and Widowers.	Young Persons, 15—20.		Children.			Total.	Very Poor.	Poor.	Remainder.
	Males.	Females.	13—15.	3—13.	—3.				
795	283	69	25	82	32	2,098	2,098	—	—
973	116	122	146	488	191	3,029	3,029	—	—
174	76	82	97	322	125	1,462	192	1,184	86
236	96	101	120	401	157	1,907	—	1,907	—
749	336	353	425	1,404	548	6,343	—	1,079	5,264
68	34	36	44	143	57	611	—	—	611
153	72	77	92	303	116	1,326	44	366	916
216	99	107	126	419	163	1,853	104	326	1,423
109	46	49	59	194	74	899	19	123	757
362	159	168	200	665	255	3,035	106	777	2,152
1,525	734	773	929	3,088	1,204	13,406	724	5,718	6,964
540	275	289	344	1,148	448	4,861	92	1,016	3,753
63	24	25	31	103	39	498	17	67	414
75	35	38	46	149	58	654	21	232	401
132	60	64	76	253	98	1,132	44	168	920
126	60	64	77	254	98	1,106	43	164	899
15	7	7	9	29	10	130	5	19	106
44	20	22	26	86	33	382	14	54	314
140	68	71	86	281	107	1,227	53	366	808
406	237	251	302	996	391	3,918	—	—	3,918
58	21	22	26	88	34	449	—	—	449
468	147	154	186	618	244	2,856	348	1,482	1,026
337	164	174	208	687	268	2,984	75	552	2,357
372	163	173	207	683	267	3,132	16	235	2,881
206	97	103	124	407	159	1,791	—	—	1,791
57	26	28	34	112	43	493	—	—	493
91	37	39	47	155	63	742	—	—	742
155	72	77	93	305	116	1,346	44	165	1,137
48	26	27	22	109	42	437	—	—	437
21	10	10	12	40	15	182	—	—	182
54	22	24	28	95	35	442	132	310	—
8	1	1	1	6	2	47	—	—	47
—	82	87	103	344	131	1,108	339	545	224
—	35	38	45	149	56	474	102	307	65
—	37	40	47	157	62	484	96	247	141
—	5	6	7	23	9	80	—	—	80
—	24	25	30	100	36	326	48	150	128
—	5	5	6	20	8	69	—	—	69
—	—	—	—	—	—	6,199	719	1,655	3,825
8,776	3,811	3,801	4,486	14,906	5,794	73,518	8,524	19,214	45,780

St. George's-in-the-East.

Class.		Description.	Heads of Families.			Wives.
			With School Children.	Without School Children.		
				Recognised.	Remainder.	
Males.						
Labour........	1	Lowest class, loafers, &c.	36	13	172	220
	2	Casual day-to-day labour	571	206	105	876
	3	Irregular labour	377	134	49	560
	4	Regular work, low pay	272	95	36	403
	5	,, ordinary pay	796	285	106	1,180
	6	Foremen and responsible work	202	71	26	300
Artisans	7	Building trades	179	64	24	267
	8	Furniture, woodwork, &c.	178	64	24	265
	9	Machinery and metals	129	46	17	192
	10	Sundry artisans	242	88	32	360
	11	Dress	657	236	87	970
	12	Food preparation	296	106	39	440
Locomotion	13	Railway servants	34	13	4	50
	14	Road service	55	20	7	82
Assistants ..	15	Shops and refreshment houses	92	34	12	136
Other wages	16	Police, soldiers, and sub-officials	19	7	2	28
	17	Seamen	180	64	24	267
	18	Other wage earners	56	21	7	83
Manufacturers, &c.	19	Home industries (not employing)	71	26	9	105
	20	Small employers	109	39	14	162
	21	Large ,,	21	8	3	31
Dealers	22	Street sellers, &c.	74	29	10	110
	23	General dealers	82	27	11	121
	24	Small shops	304	108	41	449
	25	Large shops (employing assistants)	121	43	16	180
Refreshment	26	Coffee and boarding houses	54	20	7	80
	27	Licensed houses	87	31	12	129
Salaried, &c.	28	Clerks and agents	107	39	14	158
	29	Subordinate professional	26	10	4	39
	30	Professional	14	5	2	21
No work	31	Ill and no occupation	20	7	3	30
	32	Independent	16	6	2	24
			(5,477)	(1,965)		
Females.						
	33	Semi-domestic employment	268	73	—	—
	34	Dress	142	39	—	—
	35	Small trades	87	24	—	—
	36	Employing and professional	19	5	—	—
	37	Supported	28	8	—	—
	38	Independent	6	2	—	—
			(550)	(151)		
	39	Other adult women	—	—	—	—
		Total population	6,027	2,116	921	8,318

Note.—The figures for St. George's-in-the-East are not quite so accurate as the rest.

St. George's-in-the-East.

Unmarried Males over 20 and Widowers.	Young Persons, 15—20.		Children.			Total.	Very Poor.	Poor.	Remainder.
	Males.	Females.	13—15.	3—13.	—3.				
103	50	46	11	59	23	733	733	—	—
629	190	176	176	940	370	4,239	4,239	—	—
267	126	116	117	625	246	2,617	411	1,964	242
192	94	87	87	463	183	1,912	—	1,912	—
554	273	253	252	1,355	534	5,588	28	1,129	4,431
142	70	65	65	345	136	1,422	—	—	1,422
126	62	57	57	305	120	1,261	65	288	908
126	62	57	57	304	120	1,257	61	249	947
91	45	41	42	220	87	910	29	130	751
170	83	77	77	413	163	1,705	63	381	1,261
462	225	211	209	1,116	440	4,613	249	2,002	2,362
208	102	95	95	507	201	2,089	40	436	1,613
24	12	11	10	59	23	240	6	25	209
39	19	18	18	95	37	390	24	123	243
65	32	29	29	157	62	648	22	85	540
13	6	6	6	32	13	132	4	18	110
126	62	58	58	310	122	1,271	42	168	1,061
39	19	18	18	95	37	393	13	53	327
50	25	23	23	123	48	503	30	132	341
77	30	28	28	148	58	693	—	—	693
15	5	5	5	27	11	131	—	—	131
52	28	26	26	138	54	547	86	244	217
58	26	24	24	128	50	551	15	110	426
213	105	96	97	520	205	2,138	9	141	1,988
85	31	29	29	154	61	749	—	—	749
38	15	14	15	75	29	347	—	—	347
67	21	20	19	104	41	531	—	—	531
75	38	35	34	185	73	758	23	92	643
18	10	9	9	50	20	195	—	—	195
10	4	3	4	18	7	88	—	—	88
14	7	6	5	34	13	139	62	77	—
11	4	4	3	20	8	98	—	—	98
—	89	84	83	444	174	1,215	434	596	185
—	49	46	46	244	96	662	163	384	115
—	30	28	28	150	59	406	95	179	132
—	5	4	4	24	9	70	—	—	70
—	7	7	7	35	15	107	18	29	60
—	2	2	1	8	2	23	—	—	23
—	—	—	—	—	—	3,211	538	781	1,892
4,159	2,063	1,914	1,874	10,029	3,950	44,582	7,502	11,729	25,351

This district was scheduled first on a less complete plan than was afterwards adopted.

STEPNEY.

Class.		Description.	Heads of Families.			Wives.
			With School Children.	Without School Children.		
				Recognised.	Remainder.	
Males.						
Labour	1	Lower class, loafers, &c.	22	16	145	183
	2	Casual day-to-day labour	727	514	189	1,430
	3	Irregular labour	220	156	54	430
	4	Regular work, low pay	319	226	77	622
	5	„ ordinary pay	947	671	228	1,846
	6	Foremen and responsible work	317	226	77	620
Artisans	7	Building trades	269	184	66	519
	8	Furniture, woodwork, &c.	349	247	85	681
	9	Machinery and metals	385	273	93	751
	10	Sundry artisans	234	165	57	456
	11	Dress	87	62	21	170
	12	Food preparation	125	88	31	244
Locomotion	13	Railway servants	34	25	8	67
	14	Road service	42	29	10	81
Assistants	15	Shops and refreshment houses	101	71	25	197
Other wages	16	Police, soldiers, and sub-officials	114	82	28	224
	17	Seamen	192	136	47	375
	18	Other wage earners	50	35	12	97
Manufacturers, &c.	19	Home industries (not employing)	100	71	25	196
	20	Small employers	121	86	30	237
	21	Large „	25	18	6	49
Dealers........	22	Street sellers, &c.	93	66	23	182
	23	General dealers	38	27	9	74
	24	Small shops	180	128	44	352
	25	Large shops (employing assistants)	134	95	33	262
Refreshment	26	Coffee and boarding houses	46	33	11	90
	27	Licensed houses	89	63	22	174
Salaried, &c.	28	Clerks and agents	230	164	56	450
	29	Subordinate professional	89	63	22	174
	30	Professional	42	30	10	82
No work	31	Ill and no occupation	19	13	5	37
	32	Independent	16	12	4	32
			(5,756)	(4,075)		
Females.						
	33	Semi-domestic employment	192	158	—	—
	34	Dress	107	91	—	—
	35	Small trades	69	56	—	—
	36	Employing and professional	7	6	—	—
	37	Supported	55	46	—	—
	38	Independent	19	16	—	—
			(449)	(373)		
	39	Other adult women	—	—	—	—
		Total population	6,205	4,448	1,553	11,384

STEPNEY.

Unmarried Males over 20 and Widowers.	Young Persons, 15—20.		Children.			Total.	Very Poor.	Poor.	Remainder.
	Males.	Females.	13—15.	3—13.	—3.				
196	45	42	14	64	25	752	752	—	—
681	339	317	376	1,572	611	6,756	6,756	—	—
205	106	100	118	492	191	2,072	378	1,436	258
296	147	136	162	679	264	2,928	—	2,928	—
877	486	454	538	2,243	874	9,164	83	2,154	6,927
295	160	149	176	739	287	3,046	—	—	3,046
250	138	129	153	641	249	2,598	179	473	1,946
323	175	163	193	810	315	3,341	134	554	2,653
357	191	178	212	884	344	3,668	154	552	2,962
217	113	106	127	524	203	2,202	75	390	1,737
81	40	37	44	184	72	798	142	174	482
116	63	58	71	293	115	1,204	63	290	851
32	17	15	18	77	30	323	4	17	302
39	22	21	24	103	40	411	35	116	260
94	47	43	52	217	85	932	23	109	800
106	56	52	62	259	101	1,084	27	127	930
178	83	78	94	385	149	1,717	43	200	1,474
46	22	20	24	100	39	445	11	52	382
94	54	50	58	249	97	994	71	222	701
112	68	63	75	314	121	1,227	—	—	1,227
23	12	12	14	58	23	240	—	—	240
86	46	42	50	211	82	881	158	336	387
35	18	17	20	84	33	355	24	89	242
167	92	85	102	426	166	1,742	5	97	1,640
124	73	68	81	340	132	1,342	—	—	1,342
43	21	19	23	97	38	421	—	—	421
82	38	35	41	174	68	786	—	—	786
213	107	99	118	493	192	2,122	49	230	1,843
82	43	40	47	198	77	835	—	—	835
39	22	20	24	100	39	408	—	—	408
18	9	8	10	42	16	177	78	99	—
15	5	5	6	25	9	129	—	—	129
—	65	61	72	302	117	967	396	472	99
—	38	35	41	175	68	555	153	286	116
—	26	23	28	117	45	364	97	135	132
—	3	2	3	12	4	37	—	—	37
—	19	18	21	90	35	284	57	36	191
—	10	9	11	45	18	128	—	—	128
—	—	—	—	—	—	4,628	805	931	2,892
5,522	3,019	2,809	3,303	13,818	5,374	62,063	10,752	12,505	38,806

Mile End Old Town.

Class.		Description.	Heads of Families.			Wives.
			With School Children.	Without School Children.		
				Recognised.	Remainder.	
Males.						
Labour........	1	Lowest class, loafers, &c.	12	9	203	224
	2	Casual day-to-day labour	354	274	45	673
	3	Irregular labour	259	200	33	492
	4	Regular work, low pay	362	280	46	688
	5	,, ordinary pay	1,517	1,173	196	2,886
	6	Foremen and responsible work	293	227	38	558
Artisans	7	Building trades	679	525	86	1,290
	8	Furniture, woodwork, &c.	614	474	78	1,166
	9	Machinery and metals....................	431	333	55	819
	10	Sundry artisans	653	506	84	1,243
	11	Dress	645	499	83	1,227
	12	Food preparation	537	415	68	1,020
Locomotion	13	Railway servants	99	76	13	188
	14	Road service	199	154	25	378
Assistants....	15	Shops and refreshment houses	437	338	56	831
Other wages	16	Police, soldiers, and sub-officials...	232	180	29	441
	17	Seamen	172	133	22	327
	18	Other wage earners	197	153	25	375
Manufac-	19	Home industries (not employing)	209	161	26	396
turers, &c.	20	Small employers	341	264	43	648
	21	Large ,, ...	47	36	6	89
Dealers	22	Street sellers, &c.	146	113	18	277
	23	General dealers	262	203	33	498
	24	Small shops	349	270	44	663
	25	Large shops (employing assistants)	269	208	34	511
Refreshment	26	Coffee and boarding houses	24	19	3	46
	27	Licensed houses	117	91	15	223
Salaried, &c.	28	Clerks and agents...........	648	501	83	1,232
	29	Subordinate professional................	176	136	22	334
	30	Professional	64	49	8	121
No work	31	Ill and no occupation	31	24	4	59
	32	Independent	53	41	7	101
			(10,428)	(8,065)		
Females.						
	33	Semi-domestic employment	357	294	—	—
	34	Dress	266	218	—	—
	35	Small trades	101	83	—	—
	36	Employing and professional	31	25	—	—
	37	Supported	80	66	—	—
	38	Independent	58	47	—	—
			(893)	(733)		
	39	Other adult women	—	—	—	—
		Total population...........	11,321	8,798	1,531	20,024

Mile End Old Town.

Unmarried Males over 20 and Widowers.	Young Persons, 15—20.		Children.			Total.	Very Poor.	Poor.	Remainder.
	Males.	Females.	13—15.	3—13.	—3.				
91	52	52	9	46	18	716	716	—	—
350	151	151	150	760	305	3,213	3,213	—	—
200	120	120	120	609	245	2,398	575	1,623	200
279	147	147	146	740	297	3,132	—	3,132	—
1,171	672	673	667	3,390	1,361	13,706	54	2,508	11,144
227	128	128	128	648	261	2,636	—	—	2,636
523	302	302	302	1,529	614	6,152	370	1,200	4,582
474	291	291	290	1,471	590	5,739	328	1,073	4,338
332	197	197	195	993	397	3,949	124	443	3,382
504	287	287	288	1,454	584	5,890	154	833	4,903
498	291	291	291	1,479	592	5,896	342	2,024	3,530
413	241	241	240	1,216	487	4,878	98	736	4,044
76	47	47	46	232	92	916	11	49	856
153	93	93	94	474	191	1,854	62	380	1,412
336	193	193	193	979	393	3,949	76	331	3,542
180	100	100	100	503	203	2,068	39	174	1,855
133	67	67	67	338	137	1,463	28	124	1,311
152	73	73	72	365	147	1,632	31	138	1,463
160	101	101	99	508	205	1,966	117	378	1,471
262	183	183	181	920	370	3,395	—	—	3,395
36	30	30	29	151	60	514	—	—	514
113	68	68	66	341	137	1,347	247	582	518
201	136	136	135	685	275	2,564	46	312	2,206
270	159	159	158	803	322	3,197	19	166	3,012
207	130	130	129	654	263	2,535	—	—	2,535
19	13	13	13	68	28	246	—	—	246
90	48	48	47	240	97	1,016	—	—	1,016
500	290	290	287	1,460	587	5.878	97	427	5,354
135	79	79	78	397	161	1,597	—	—	1,597
49	32	32	31	161	64	611	—	—	611
24	16	16	15	78	30	297	171	126	—
41	17	17	17	85	34	413	—	—	413
—	122	122	121	618	247	1,881	572	1,024	285
—	89	89	87	441	177	1,367	371	693	303
—	33	33	32	165	66	513	104	153	256
—	14	14	14	70	28	196	—	—	196
—	27	27	26	136	54	416	42	83	291
—	19	19	18	94	38	293	—	—	293
—	—	—	—	—	—	9,892	791	1,840	7,261
8,199	5,058	5,059	4,981	25,301	10,157	110,321	8,798	20,552	80,971

POPLAR.

Class.		Description.	Heads of Families.			Wives.
			With School Children.	Without School Children.		
				Recognised.	Remainder.	
Males.						
Labour........	1	Lowest class, loafers, &c.	22	15	396	425
	2	Casual day-to-day labour	1,491	1,036	178	2,652
	3	Irregular labour	525	364	63	933
	4	Regular work, low pay	1,569	1,090	188	2,792
	5	„ ordinary pay	1,886	1,310	225	3,355
	6	Foremen and responsible work	714	497	86	1,272
Artisans	7	Building trades	1,399	971	167	2,487
	8	Furniture, woodwork, &c.	1,116	775	133	1,985
	9	Machinery and metals	1,603	1,113	192	2,851
	10	Sundry artisans	744	516	89	1,323
	11	Dress	430	298	51	764
	12	Food preparation	278	194	33	495
Locomotion	13	Railway servants	421	292	50	748
	14	Road service	159	111	19	284
Assistants....	15	Shops and refreshment houses	344	240	41	613
Other wages	16	Police, soldiers, and sub-officials	336	235	40	599
	17	Seamen	711	495	85	1,266
	18	Other wage earners	263	184	32	470
Manufacturers, &c.	19	Home industries (not employing)	195	136	23	347
	20	Small employers	235	164	28	419
	21	Large „	46	32	5	82
Dealers	22	Street sellers, &c.	143	99	17	254
	23	General dealers	101	70	12	180
	24	Small shops	584	405	70	1,039
	25	Large shops (employing assistants)	258	180	31	460
Refreshment	26	Coffee and boarding houses	67	46	8	119
	27	Licensed houses	121	84	14	215
Salaried, &c.	28	Clerks and agents	778	540	93	1,383
	29	Subordinate professional	322	223	38	572
	30	Professional	127	88	15	226
No work	31	Ill and no occupation	85	59	10	151
	32	Independent	59	41	7	105
			(17,132)	(11,903)		
Females.						
	33	Semi-domestic employment	558	472	—	—
	34	Dress	190	160	—	—
	35	Small trades	170	144	—	—
	36	Employing and professional	30	25	—	—
	37	Supported	115	98	—	—
	38	Independent	89	75	—	—
			(1,152)	(974)		
	39	Other adult women	—	—	—	—
		Total population	18,284	12,877	2,439	30,866

POPLAR.

Unmarried Males over 20 and Widowers.	Young Persons, 15—20.		Children.			Total.	Very Poor.	Poor.	Remainder.
	Males.	Females.	13—15.	3—13.	—3.				
332	172	82	11	56	22	1,533	1,533	—	—
1,019	641	543	637	3,367	1,311	12,875	12,875	—	—
359	226	192	225	1,188	463	4,538	1,130	2,823	585
1,072	657	557	652	3,450	1,343	13,370	—	13,370	—
1,288	836	707	829	4,385	1,707	16,528	131	2,562	13,835
488	323	261	321	1,695	660	6,317	—	—	6,317
956	639	541	634	3,354	1,306	12,454	982	3,201	8,271
762	523	443	519	2,747	1,069	10,072	795	2,589	6,688
1,095	716	606	711	3,759	1,463	14,109	662	2,201	11,246
508	338	287	335	1,777	692	6,609	246	890	5,473
294	195	165	194	1,024	399	3,814	350	1,248	2,216
190	124	105	123	649	253	2,444	108	372	1,964
288	193	164	191	1,014	395	3,756	46	80	3,630
108	68	57	67	352	137	1,362	73	410	879
235	153	130	152	802	313	3,023	84	146	2,793
229	155	131	154	813	317	3,009	84	147	2,778
486	264	224	263	1,389	541	5,724	159	280	5,285
180	82	70	81	431	166	1,959	55	95	1,809
133	88	75	87	460	180	1,724	153	480	1,091
160	114	97	113	599	233	2,162	—	—	2,162
31	21	18	21	109	42	407	—	—	407
98	65	56	65	343	134	1,274	207	453	614
69	42	36	42	221	86	859	26	175	658
399	207	176	206	1,090	425	4,601	54	524	4,023
176	126	107	125	660	257	2,380	—	—	2,380
46	28	24	28	148	58	572	—	—	572
82	63	54	62	331	129	1,155	—	—	1,155
531	342	289	340	1,792	698	6,786	178	311	6,297
220	142	120	141	745	290	2,813	—	—	2,813
87	59	50	58	308	120	1,138	—	—	1,138
59	38	32	38	198	77	747	273	474	—
40	21	17	21	108	43	462	—	—	462
—	187	159	185	984	383	2,928	1,084	1,177	667
—	63	54	62	331	129	989	306	439	244
—	61	52	60	320	125	932	288	335	309
—	11	10	11	60	23	170	—	—	170
—	40	34	39	209	81	616	75	48	493
—	23	20	23	121	47	398	—	—	398
—	—	—	—	—	—	9,784	1,182	2,299	6,303
12,020	8,046	6,745	7,826	41,398	16,117	166,393	23,139	37,129	106,125

TOWER HAMLETS. (WHITECHAPEL, ST. GEORGE'S-IN-

Class.		Description.	Heads of Families.			Wives.
			With School Children.	Without School Children.		
				Recognised.	Remainder.	
Males.						
Labour	1	Lowest class, loafers, &c.	137	85	1,248	1,455
	2	Casual day-to-day labour	3,371	2,192	627	6,124
	3	Irregular labour	1,524	955	250	2,706
	4	Regular work, low pay	2,717	1,829	415	4,900
	5	„ ordinary pay	5,765	3,875	972	10,523
	6	Foremen and responsible work	1,582	1,060	247	2,864
Artisans	7	Building trades	2,652	1,832	387	4,818
	8	Furniture, woodwork, &c.	2,434	1,685	382	4,456
	9	Machinery and metals	2,638	1,828	389	4,796
	10	Sundry artisans	2,173	1,487	368	3,990
	11	Dress	3,080	1,985	688	5,687
	12	Food preparation	1,679	1,116	328	3,103
Locomotion	13	Railway servants	640	443	93	1,159
	14	Road service	517	357	83	951
Assistants....	15	Shops and refreshment houses	1,084	760	173	2,000
Other wages	16	Police, soldiers, and sub-officials....	806	577	136	1,504
	17	Seamen	1,268	837	183	2,261
	18	Other wage earners	603	419	89	1,100
Manufac-turers, &c.	19	Home industries (not employing)	691	475	124	1,280
	20	Small employers	1,133	784	230	2,128
	21	Large „	188	128	37	351
Dealers	22	Street sellers, &c.	710	487	157	1,339
	23	General dealers	764	525	163	1,442
	24	Small shops	1,727	1,129	308	3,133
	25	Large shops (employing assistants)	952	646	174	1,758
Refreshment	26	Coffee and boarding houses............	239	152	46	429
	27	Licensed houses	490	322	90	895
Salaried, &c.	28	Clerks and agents	1,892	1,335	292	3,485
	29	Subordinate professional	653	460	100	1,200
	30	Professional	265	185	41	487
No work	31	Ill and no occupation	200	135	38	368
	32	Independent	151	105	22	276
			(44,725)	(30,190)		
Females.						
	33	Semi-domestic employment	1,574	1,159	—	—
	34	Dress	788	576	—	—
	35	Small trades	505	370	—	—
	36	Employing and professional	104	74	—	—
	37	Supported	339	268	—	—
	38	Independent	186	151	—	—
			(3,496)	(2,598)		
	39	Other adult women	—	—	—	—
		Total population	48,221	32,788	8,880	82,968

THE-EAST, STEPNEY, MILE END OLD TOWN, POPLAR.)

Unmarried Males over 20 and Widowers.	Young Persons, 15—20.		Children.			Total.	Very Poor.	Poor.	Remainder.
	Males.	Females.	13—15.	3—13.	—3.				
1,517	602	291	70	307	120	5,382	5,832	—	—
3,652	1,437	1,309	1,485	7,127	2,788	30,112	30,112	—	—
1,205	654	610	677	3,236	1,270	13,087	2,686	9,030	1,371
2,075	1,141	1,028	1,167	5,733	2,244	23,249	—	23,249	—
4,639	2,603	2,440	2,711	12,777	5,024	51,329	296	9,432	41,601
1,220	715	639	734	3,570	1,401	14,032	—	—	14,032
2,008	1,213	1,106	1,238	6,132	2,405	23,791	1,640	5,528	16,623
1,901	1,150	1,061	1,185	5,751	2,257	22,262	1,422	4,791	16,049
1,984	1,195	1,071	1,219	6,050	2,365	23,535	988	3,449	19,098
1,761	980	925	1,027	4,833	1,897	19,441	644	3,271	15,526
2,860	1,485	1,477	1,667	6,891	2,707	28,527	1,807	11,166	15,554
1,467	805	788	873	3,813	1,504	15,476	401	2,850	12,225
483	293	262	296	1,485	579	5,733	84	238	5,411
414	237	227	249	1,173	463	4,671	215	1,261	3,195
862	485	459	502	2,408	951	9,684	249	840	8,595
654	377	353	399	1,861	732	7,399	197	630	6,572
938	483	434	491	2,451	959	10,305	277	791	9,237
461	216	203	221	1,077	422	4,811	124	392	4,295
577	336	320	353	1,621	637	6,414	424	1,578	4,412
1,017	632	622	699	2,977	1,173	11,395	—	—	11,395
163	89	87	95	433	170	1,741	—	—	1,741
817	354	346	393	1,651	651	6,905	1,046	3,097	2,762
700	386	387	429	1,805	712	7,313	186	1,238	5,889
1,421	726	689	770	3,522	1,385	14,810	103	1,163	13,544
798	457	437	488	2,215	872	8,797	—	—	8,797
203	103	98	113	500	196	2,079	—	—	2,079
412	207	196	216	1,004	398	4,230	—	—	4,230
1,474	849	790	872	4,235	1,666	16,890	391	1,225	15,274
503	300	275	297	1,499	590	5,877	—	—	5,877
206	127	115	129	627	245	2,427	—	—	2,427
169	92	86	96	447	171	1,802	716	1,086	—
115	48	44	48	244	96	1,149	—	—	1,149
—	545	513	564	2,692	1,052	8,099	2,825	3,814	1,460
—	274	262	281	1,340	526	4,047	1,095	2,109	843
—	187	176	195	909	357	2,699	680	1,049	970
—	38	36	39	189	73	553	—	—	553
—	117	111	123	570	221	1,749	240	346	1,163
—	59	55	59	288	113	911	—	—	911
—	—	—	—	—	—	33,714	4,035	7,506	22,173
38,676	21,997	20,328	22,470	105,443	41,392	456,877	58,715	101,129	297,033

DISCUSSION *on* MR. BOOTH'S PAPER.

THE CHAIRMAN (Dr. T. Graham Balfour, F.R.S.) said that Mr. Booth had stated very well the extreme difficulty of getting accurate statistical information upon the questions which he had discussed. One great difficulty must arise from there being no defined line between the different occupations, and one occupation and one class of society shading into another. He was sure that they would all feel much indebted to Mr. Booth for having brought before the meeting a very important social question.

Professor A. MARSHALL said that economists were accustomed to be charged, as they had been by Mr. Booth, with confining their attention to abstract reasoning, and paying little attention to the real facts of life. Speaking as an economist, he would return good for evil, and say that it would be difficult to conceive a paper of more absorbing interest to economists than that which had just been read. The economists who do not study actual facts, but evolve their theories out of their inner consciousness, had, so far as his experience went, this peculiarity, that they themselves were not actual facts. They were figments of the imagination evolved out of the inner consciousness of their critics, and altogether unlike the real facts of life in the shape of economists as they actually existed. At all events he was sure that all those economists whom he had the pleasure of knowing would say that there was not a line in the paper which they ought not to think over most carefully. There were however several directions in which Mr. Booth might on a future occasion give a little more help, without going away from his main purpose. English statistics were behind those of several other countries in failing to give any estimate of the average number of persons employed in each establishment. The want of this knowledge hampered economists very much, and Mr. Booth might be able to arrange his figures so as to supply it if Government persisted in refusing to do so; as it was he only gave the numbers of heads of families among employers and employed, and of course most of the employed in London were not heads of families. He thought the figures relating to irregularity of employment were of great interest as far as they went. There were no doubt a few trades in which, for exceptional reasons, employment was becoming more irregular. The statistics of these trades had been quoted repeatedly, and too much importance had been attached to them. There were many reasons for believing that a broad survey would show that employment was, on the whole, becoming more regular, and Mr. Booth's figures tended to confirm him in this belief. Another fact upon which Mr. Booth threw light, but upon which he might throw more, was the number of persons employed in London who were under no necessity to live there. There was something wrong when things produced for the wholesale market, and without reference to individual orders, were made by workpeople in London, when a family could not get thoroughly good accommodation for less than 10*s.* a week, and when consequently they often lived in one room, or a part of one. We want to know how many are really compelled to live in London to meet its requirements as a great centre of commerce, of government, and of intellectual and artistic work. The riches of London were sufficient to pay those people whose work there was really necessary high enough wages to enable them to live decently. There seemed to be no unwillingness on the part of rich people as individuals, or as a tax-paying community, to pay any sums which might be required in order to remove the festering spots among them. But the fear was that by making London attractive they would increase the flow of labour to it. The immigrants into it kept down the wages even in those trades which were necessary there, and overflowed into other trades which produced for the wholesale market, and having to compete with places where rent was low, could not get wages high enough to pay for decent house room in London. That which tended to make life in London more attractive was no doubt good so far as it went, but its good was entirely in the present, and it was likely rather to increase misery in the future by inducing people to come to London. A contrary result would be produced by spending money on the making of open places, and by insisting that persons in London must have a certain amount of house room. The laws in existence on this subject were stringent enough, but it was physically impossible to enforce them suddenly with regard to those in London. Many difficulties would however be solved at once by giving notice that, though a temporary dispensation would be granted to those who had already obtained a settlement in London, no excuse would be admitted on the part of new comers. It would not be necessary to make invidious distinctions as to particular nationalities. But those who were thinking of coming to London, whether they were foreigners or country people, would be made to understand that if they came there they must be able to pay for decent and healthy house room. Then he would tighten the screw gradually with regard to those who were already living in London. The effect of these changes would be that those trades which it was not necessary to carry on in London would not be carried on there, and the great mass of helpless labour which was now at the mercy of any pushing employer would gradually take itself away. Those who were obliged to live in London would have to pay whatever price was necessary to secure decent accommodation, and they would be sufficiently scarce to demand wages high enough to enable them to pay for it. Again, it would be very interesting to get yet more information than Mr. Booth had yet supplied with regard to those persons who did not wish to work. An employer wrote some time ago to say that he had offered work to the unemployed: many had tried it, but not one of them would stick to it. Probably however he had set them to work which anyone in full health and strength ought to be able to do, but which required more strength than they possessed. It would be desirable to know more clearly what was the kind of work which persons who were returned as unwilling to work were asked to perform. He believed that a few of the poor law officials were inclined to demand work which men were unable to perform, not on account of any moral unwillingness, but because want of food or some other cause had deprived them of the stamina necessary for it. He believed that the information contained in the paper was one of the most valuable presents which the economists had had, and that when the work was verified and completed it would take a unique position among the materials out of which their science was being built up.

Professor LEONE LEVI said that they were much indebted to their friend Mr. Booth for his interesting microscopical inquiry as to a portion of the population of London. Such papers as this were required from time to time. Persons were in the habit of taking large views of the population of the United Kingdom and of the world, and sometimes failed to take narrow and exhaustive views of things near at hand. There were, however, he submitted, several imperfections in the paper. It was well to remember that whatever might be the proportion of poverty which was indicated, it was confined to a very small section of the general community. Quite recently there had been published a paper called the "Bitter Cry of Outcast London," which implied the existence of a very extensive amount of poverty in London; but when they came to see how far such poverty extended, it might be found that it only applied to some hundreds or some thousands of persons amidst nearly four millions of people. He wondered also whether the paper gave an accurate idea of the word "poor." Who was a poor man? The author had stated that a certain number were very poor who were in the receipt of from 18*s.* to 20*s.* a week. An income of 18*s.* or 20*s.* a week, even with four or five persons in a family, where there was generally more than one person earning something, ought not to leave the recipient in the condition of poverty. The view that such persons were poor was not justified by the cost of living; and if the expenses of such people included drink and unnecessary luxuries, there was no ground for sympathy with their poverty. It is a misnomer to call a person poor where, out of an income of 20*s.* a week, he spends 10*s.* or 12*s.* in a wasteful manner. The author had not mentioned the causes of poverty, such as gambling and drink, nor had he touched upon the average wages of the community with which he dealt. His own impression was that poverty proper in the district which had been described was more frequently produced by vice, extravagance, and waste, or by unfitness for work, the result in many cases of immoral habits, than by real want of employment or low wages. It was satisfactory to find that there were 65 per cent. of the whole number above the line of poverty. He would like to know what was meant by there being 22 per cent. on the line of poverty and 13 per cent. below the line. It would be of great value if Mr. Booth would add as an appendix budgets of the income and expenditure of as large a proportion as possible of the classes with whom he dealt.

Major Craigie joined with previous speakers in thanking Mr. Booth for the trouble and care which he had taken in bringing these figures before them. At the same time he would emphasise the desire which had been expressed that the inquiry had gone a little farther before its results were published. There was always a danger in figures going out to the public which did not cover the whole case. He should like to ask Mr. Booth whether his attention had been directed to the investigation which the Society made officially into much the same districts exactly forty-three years ago? In the year 1844 a very important committee appointed by the Statistical Society, with Mr. Hallam as president, endeavoured to ascertain the condition of the poorer classes in St. George's-in-the-East, as a typical metropolitan parish. To aid the inquiry, which was, he believed, a house to house one, in the area to which it extended, money was contributed by gentlemen outside, and also from the funds of the Society. That investigation went to the very point which Professor Levi had just referred to, namely, the proportion of the expenditure of the families to the earnings of their heads, and particularly the expenditure in house rent. It also gave an analysis of the trades and professions of the district, and the conditions of life and health, and especially the position of the women, and rate at which the population multiplied. He would suggest that Mr. Booth should supplement his paper by drawing on that committee's report for comparative information on some of the points included in his investigation. It had occurred to him that perhaps the information now given to the school board visitors was not to be entirely relied upon in all cases. It was very well known that in many districts of the metropolis the visits of these visitors were not always welcome, and the answers given to them might be given with an obvious purpose, and this to a sufficient extent to impart a bias to any statistical conclusions resting on the data thus collected as to the financial condition of the parents visited. It was not too much to hint that there might thus be an element of possible suspicion with regard to this information. Some years ago he had occasion himself to go over a part of this district and somewhat similar districts in the south of London, and he was not, on the special point to which his inquiries were directed, impressed with the fulness of the knowledge which the school board authorities possessed of the circumstances of the parents of the children in the schools. Out of about 5,000 children whom he saw, cases were to be found of pupils excused the payment of the school board fees on the ground of poverty, who were yet as a matter of fact at the same time putting money into the savings banks in connection with the board schools. This showed that the school board machinery had not probed to the bottom the social conditions of the population around their schools, or that there was a concealment or misrepresentation of facts which might be again practised on the school board visitors. He regretted that the paper made so little reference to the remarkable statistics of pauperism in this part of London. Anyone who had studied the question of poor law administration at all, had always looked to

Whitechapel and St. George's-in-the-East for some of the most striking examples of good poor law administration. These parishes were conspicuous in the reform which had taken place in London generally. He had that very evening examined the official record for January last year, which showed how enormously official pauperism had diminished throughout the metropolis generally. In the year 1857, 47 or 48 persons out of every 1,000 were in receipt of relief at the end of the month of January. As lately as 1871 there were 50 in every 1,000 in London on the pauper roll; but at the present time, in spite of the distress which had been heard of in connection with the east of London, the proportion of actual pauperism had fallen to one-half what it then was, and there were not now more than 25 per 1,000 on the pauper roll. That was a fact which could not be ignored by anyone who was looking into the social condition of the metropolis as a whole. Undoubtedly the conditions of relief had been altered; but he believed that those who were conversant with the poor law management would agree that the altered condition of administration had been closely followed by a great rise in the position of the class who formerly received relief. There had been, what there was much room for, a greater cultivation of self-reliance, and a greater exercise of faculties which had lain dormant while the paupers could live at their ease upon the more industrious section of the population. Professor Marshall had ably referred to the question of the injurious concentration of the population in districts like the metropolis. He (Major Craigie) trusted that their efforts would be rather to prevent the agglomeration of masses of half employed or of irregularly employed persons who came up to London on the vague chance of competing with the crowds already there for irregular earnings. They had heard proposals made of late for the abolition of the coal and wine duties, on the ground that they would thus be promoting greater manufactories in London and increasing metropolitan trade. This meant drawing from the country greater mobs of expectant workers to London, who would be far better employed in local centres. It was just the opposite result they should aim at—the diffusion not the concentration of industrial activity. He was sure that the greatest curse of London was its growing and enormously increasing masses of irregularly employed persons, and any policy which should check that dangerous concentration should be welcomed equally on political and on social grounds.

Mrs. Heckford said that she had been working for some time in connection with the Working Women's Co-operation Association with the idea of promoting a rise in the wages of working women. She wished to corroborate one remark which had been made by Mr. Booth, and that was that a very great deal of the want in London arose from the physical unfitness of the workers. Of 75 women who passed through her hands in the last two years, there were only 10 who were really good workers. The rest were unfit for the work which they had to do. They had either become incapacitated by work which they had been obliged to do, or they had never learnt their trade thoroughly, and consequently they could not do their work quickly enough to enable them to earn proper wages. Out of the 75 there were only 3 women who drank, and only one who drank at all heavily, and had to be dismissed in consequence. There were only 4 whom she could not call trustworthy; the others were honest, and anxious to earn what money they could, although for the most part unfit for competition. Many of them were worn out before their time, and one of them, a woman of 40, had the appearance of a woman of about 60.

Mr. S. Bourne said that it was not by one mode of research alone that they could ever expect to arrive at the truth. He thought that what they wanted was not so much an extension of the paper as some speakers had suggested, as an independent investigation starting from different bases, and following in different directions, with a comparison of the results of such investigations. For instance there was needed most decidedly an investigation into the moral position of the various classes of society, for his belief was, like that of Professor Leone Levi, that a large amount of distress in the country arose very much from the immoral conduct of the poorer classes, in which respect they followed very closely the example which was set them by the higher classes. If they could make a moral division of the community, they would arrive at data which would throw a great deal of light upon the causes of the conditions set forth in the paper. Then, side by side with that, they needed an inquiry into the expenditure of the people. When he spoke of morals he was not referring exclusively to drunkenness or want of chastity, but he meant those habits which affected the earnings and the expenditure of the people. A great deal had been said about extravagance and want of thrift; but they must bear in mind that the stoppage of extravagance and the cultivation of thrift would not altogether remove the evils which now existed, for what was extravagance in one person furnished employment to another, and in a certain sense led to the distribution of wealth. The only true extravagance with regard to the whole body of the population was the waste of that which was required, and the only real want of thrift, taken in the sense of the whole community, was in the failure to use all the powers that existed in the mass. With regard to pauperism and a comparison of the numbers of persons relieved from time to time, it must be borne in mind that any investigation into the relief which was doled out by the State was incomplete, unless there could be added to it that which came from charitable sources. He believed that a large amount of the diminution of poor law relief arose from a greater recognition on the part of the wealthy of the obligations which they were under to share their means amongst their poorer neighbours, and thus to a greater extension of private charity or help. He would not class it altogether as charity. There was certainly now a great deal more of help from the West End to the East End than there had ever been before. According to the paper there was undoubtedly a want of sufficient employment for the mass of the people, as well as a neglect of the proper use of that which the employment produced; but it would be useless, he thought, to attempt anything like the legal interposition which Professor Marshall suggested for preventing people from coming to London. He did not think that it would be possible in the present state of society to take any step of that kind. What they needed to do was to offer attractions to people to reside out of London, and to direct people to the magnificent openings for the employment of labour and the production of the necessaries and luxuries of life which existed in distant parts of the empire. The true course was to draw people away from those connections which were attended with so much that was immoral, and vicious, and so much foolish waste of time and strength. They must take some national means of lessening the pressure of population. The causes which had been in operation to produce the present state of things were going on at an accelerated rate. At present we had very cheap food, and he hoped that it would continue. At the same time it was quite clear that there was less wealth coming into the country than formerly to meet the pressure of circumstances from year to year. In that fact there was to be found an additional reason for the spreading of the population abroad in those places where they could become the creators of wealth, and be without their present inducement to waste so much in foolish amusements.

Dr. G. B. LONGSTAFF said that it was unfortunate that Mr. Booth had not gone more into detail as to the statistical method which he had employed. He should like to have heard Mr. Booth's equation of the supply and demand of dock labour, which must be one of the most interesting things that Mr. Booth had to give them. As a piece of statistical work the paper reflected the very greatest credit on the writer. He confessed that when he heard many months ago of Mr. Booth's intention to carry out a work of this kind, he thought that it was altogether impossible that he could ever get so far as he had done, and he congratulated him on his success. As regarded the ultimate sources of the information, these, like the ultimate sources of all statistical information, were liable to fallacy as they all knew very well. All information had to come ultimately from individuals, and individuals were all fallible, school board visitors amongst the number. On the whole he thought that the social condition of the people was likely to be described by the school board visitors as worse than it really was, as regarded not only the disreputable classes, but the disreputable members of all classes. Probably as regarded the more respectable classes the reverse might be the case, and the visitors might often think that people were better off than they really were. The respectable man was the one who made the best of his circumstances, and the disreputable man was the one who made the worst of his circumstances. With regard to the estimates of population which were alluded to in the appendix, they knew that as attention was called to any subject the information was likely to become more and more complete. In the case of births, when these were first registered in the year 1837, the registration was very defective, and some portion of the apparent rise in the birth-rate was due to improvement in registration. He thought that it was the same with regard to children of school age, and that every enumeration would more and more closely approximate to accuracy, and that therefore the population had not increased as much as Mr. Booth imagined. Probably however the error was not very great. Mr. Booth seemed to be in some doubt as to the increase of the population of Stepney. He suggested that Mr. Booth might be able to check the estimates by the number of births registered, assuming the birth-rate of Stepney to have fallen to the same extent as that of London generally. Mr. Booth had rightly told them that his sources of information were imperfect, and his figures were therefore only approximations. He (Dr. Longstaff) thought that while for working purposes it was always right that a statistician should take notice of two places of decimals, he did not think that in the tables there was need to notice them at all. Mr. Booth's figures were of course only approximations, and therefore it became almost an affectation to state the percentage in decimals while the error was probably two or three per cent.

Colonel Lenox Prendergast said that having represented the Tower Hamlets district on the London School Board for eight years, he thought that Mr. Booth might like to have from him a corroboration as to the sources of information which he had relied upon. The school board visitor was a person who was in close contact with the people, whatever might be thought about it, and he knew very largely the condition of the people, and though visitors had in many of the districts in London a connection with the remission of fees, probably in the Tower Hamlets district that would be less the case than in other districts, for, during many years, the Tower Hamlets district had never remitted any fees at all. They gave the people penny schools, and they found that that for several years was the best method of dealing with that class of population, so that the considerations which had been urged as to the *bona fides* of the information obtained by the visitors would scarcely apply in that district. He had felt that a fallacy had run through the discussion that evening. General conclusions seemed to have been drawn with regard to the whole of London from the condition of the Tower Hamlets district. There were however very great peculiarities about that district, and, at the present moment, very serious peculiarities. The population was largely a waterside one, and was enormously affected by the state of trade. For miles down the river there were new docks, and new sources of employment, which dragged the population from their own neighbourhood to work in some other. Many of the men went for miles to their work down the river, and the demolitions which had taken place had had a most serious effect upon the condition of the people. Obviously a riverside population as this so largely was, must live near their work. Much of their work went on at night, and some worked all night. A hardship had been brought upon the people by the old houses being pulled down, without new ones being built for them, and yet many must live close to the spot at which they were employed. The consequence was that immense crowding had taken place, and great misery and discomfort had been caused; but from his knowledge of the very lowest and the very poorest of the people, of classes C and D, he was bound to say that in no part of London had he seen better moral conditions than he had amongst the very poorest of the people of that district. It was extremely desirable that when people talked about the "vice" prevalent in that district, the facts should be fully stated in regard to this portion of the population. There was plenty of vice in the Tower Hamlets, but where was it to be found? It existed amongst the people who occupied the houses which were described just now as having been built by the jerry builders. The occupants of these houses got them at low rents. They passed the whole day in bed, and passed their nights preying upon society within a few hundred yards of the place where we are met to-night. That was the part of the population amongst which the chief vice existed. It did not exist in anything like the same degree amongst the poorest of the population. He would venture to make one slight correction, if Mr. Booth would permit him to do so. In the paper just read he spoke about the low and miserable class whose children attended the board schools, as if it was in the board schools only that they were to be found. That was an error. Those who attended the non board schools were of the very poorest class, and some of them were even poorer than those who attended the board schools. The information which Mr. Booth had obtained from visitors was of a most valuable character, because the visitors dealt with the whole elementary school population of the district, and did not deal simply with the class with which the board school education was connected. He (Colonel Prendergast) had ventured to interpose because he felt that it was important that such a body as the Statistical Society should verify its references, and weigh carefully how far the particular district described in the paper would or would not justify their forming a judgment of the condition of the rest of London. In conclusion he wished to say that school board members had been very glad to afford the assistance of which Mr. Booth had so kindly expressed his appreciation, and the Statistical Society were now in possession of fairly reliable information relating to a large district of the metropolis, which could scarcely have been obtained but for the existence of the body of officers known as "school board visitors," and they had gladly co-operated to the best of their ability.

Mr. E. K. Fordham said that he did not think that there was any hope of a returning tide from London to the country. There was a continual tide from the country to the town because labour was so much better paid for in the town. Men who could earn only 10*s.* or 12*s.* a week in the country could obtain 27*s.* a week in the towns. Then there was a continual stream of men into the ranks of the police. He found in his own district that the Great Northern Railway took away many of the country labourers and gave them work on the line. He really did not see how the people were to be prevented from leaving the country and going into the towns. Nor did he think it desirable that they should be kept in the country. There was very little work for them in the country as far as agriculture was concerned, because we were glutted with foreign provisions of all kinds. With regard to the poor law administration, he found that there was an immense number of the children of paupers who obtained situations in London. The girls went into service as housemaids and cooks, at wages of from 20*l.* to 40*l.* a year, and the boys became household servants—butlers and so on—and they helped to contribute very largely towards the support of their parents. They did not do this ten years ago. This state of things had arisen within the last ten years. It indicated a good disposition on the part of the children, and a generally improved state of society.

The Chairman said that he was sure the meeting would agree in a most cordial vote of thanks to Mr. Booth for the very interesting paper which he had read.

Mr. Booth, in replying to the discussion, said that no one could be more conscious than he was of the imperfections of his paper. He entirely agreed with very many of the criticisms which had been made. With regard to Professor Marshall's points they should certainly be taken into account if he was able to continue the work. As to Professor Leone Levi's suggestion it would be not only important, but a necessity, in order to make the paper of greater value to insert something like a budget of the expenditure of the people referred to. The question of their earnings he had dealt with in the paper by saying that the information could only be got by a trade inquiry. The expenditure of the different classes might be ascertained by persons who were living and working amongst them, and he hoped that such persons would procure the information. Mr. Stephen Bourne had pointed out that the moral questions would form a third set of inquiries. He (Mr. Booth) had omitted these entirely from his paper. His justification for reading such an imperfect paper was that he felt very great doubt whether he could go on with the work by himself without going wrong, and he wanted to bring it to the touch of public discussion. He had been very thankful for the discussion which it had elicited.

MISCELLANEA.

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I.—*Emigration and Immigration in the Year* 1886.

THE following is a copy of Mr. R. Giffen's report to the Secretary of the Board of Trade on the "Statistical Tables relating to Emigration and Immigration from and into the United Kingdom in the year 1886." In continuation of similar reports to be found in the *Journal* for previous years:—

"The statistical record of emigration from the United Kingdom during the year 1886, contained in the accompanying tables, shows a considerable increase in amount in place of the diminution noticed in each of the two preceding years. At the same time the return current of immigration has continued to diminish, thereby enhancing the effect on the balance of the population of this increase in the number of emigrants, or rather, to be technically correct, of passengers from the United Kingdom to places out of Europe. The present would appear therefore to be a time in which emigration having fallen to a low point, or to a minimum, is once more increasing.

"Dealing first, according to the usual practice in this report, with the *gross* amount of emigration, *i.e.*, the total number of passengers that embarked at ports in the United Kingdom for places out of Europe during the year, we obtain the following figures:—

(*a.*) *Emigration in* 1886 *and* 1885.

	Total, including Foreigners.	Emigrants of British and Irish Origin only.
Number of emigrants in 1886	330,801	232,900
" '85	264,385	207,644
Increase in 1886	66,416	25,256

"This statement shows an increase in total emigration of about 25 per cent., which more than balances the diminution observable in 1885, but which is not sufficient to make the total so large as in 1881-82-83. The new increase is especially marked among the emigrants of foreign origin, the number thus returned in 1886 being 94,370, as against 53,783 in 1885, showing an increase of 75 per cent. The decline in emigration which took place a few years ago, it will be remembered, was more noticeable in this class than among persons of British and Irish origin, and it is interesting to note that the opposite movement is also first shown in the same class. As regards emigrants of British and Irish origin only, it would appear that the increase on the 1885 figures is one of 12 per cent. only; the number now reached, 232,900, being still nearly 10,000 less than that of 1884, and 87,000 short of the very high figure returned for 1883. The proportion of British and Irish emigration to population has advanced from 0·57 per cent. in 1885 to 0·63 per cent. in 1886, a figure surpassed, however, in each of the years 1880-84, which were years of large emigration.

"Coming next to the figures of immigration, the fact already referred to, that the effect on the balance of the population of an increase of emigration is enhanced by a simultaneous decline of immigration, has to be noticed; this decline, it should be observed, following a decline in the previous year. The figures on this head are as follows:—

(*b.*) *Immigration in* 1886 *and* 1885.

	Total, including Foreigners.	Immigrants of British and Irish Origin only.
Number of immigrants in 1886	108,879	80,018
,, '85	113,549	85,468
Decrease in 1886	4,670	5,450

"Thus, there is a decrease alike in the total number of immigrants in 1886, and in the number of persons of British and Irish origin returning to the United Kingdom.

"In previous reports it has been noticed that both in expansion and diminution of volume immigration has followed emigration at a year's interval. Last year it was stated that, 'an increase of immigration accompanies generally an increase of emigration, and reaches its maximum in those years when the emigration begins to fall off from the maximum it has itself reached, and then in the succeeding years emigration and immigration both decline; the minimum however in the case of emigration, preceding the minimum in the case of immigration, which, as a rule, occurs in the first year after the emigration, having declined, begins again to increase.'

"These remarks are fully justified by the facts now stated, compared with those of previous years. The last maximum year of emigration was 1883, and the last maximum year of immigration, 1884, since which years both have declined, emigration, however, taking a turn upwards in the year 1886, as compared with 1885, which was a minimum year, while 1886 is as yet the minimum year of immigration. It remains to be seen whether, according to the usual rule, immigration will in turn now begin to increase, and reach its maximum a little later than the maximum of emigration itself.

"Coming next to the excess of emigrants over immigrants, the figures are as follows:—

(*c.*) *Excess of Emigrants.*

	Total Emigration and Immigration.	Emigration and Immigration of Persons of British and Irish Origin only.
Number of emigrants in 1886...........	330,801	232,900
" immigrants '86...........	108,879	80,018
Excess of emigrants in 1886	221,922	152,882
Corresponding excess in 1885	150,836	122,176
" '84	180,435	150,823
" '83	296,654	246,314
" '82	330,484	224,655
" '81	315,409	190,295
" '80	263,978	180,535
" '79	163,190	126,338
" '78	69,712	57,958
" '77	38,123	31,305
" '76	44,665	38,065

"According to this table, the total excess of emigrants (*i.e.*, including foreigners) has advanced from 150,836 in 1885 to 221,922 in 1886, a figure which is considerably higher than that shown for 1884, though only two-thirds of the maximum in 1882. Net emigration *proper*, that is, of persons of British and Irish origin only, has also increased, though to a less extent, the amount now reached, 152,882, being an advance of 30,706 on the figures for 1885, which may, apparently, be taken as a minimum year. The proportion of *net* emigration to population has risen from 0·34 per cent. in 1885 to 0·42 per cent. in 1886, which is also the figure given for 1884. This is a fairly high percentage, being nearly four times that of 1876, though it is considerably less than that reached in the years 1880-83.

"Assuming, as apparently may now be done, that 1885 was a year of minimum emigration, it is to be observed that the oscillation in recent years between a maximum and minimum period has been much less than in the former period, when a similar oscillation occurred. It is unfortunately impossible in this connection to deal with the emigration and immigration of persons of British and Irish origin only, as the figures of immigration did not distinguish between such persons and foreigners before 1876, but dealing with the whole movement, it appears that the decline from the maximum net emigration in 1872 and 1873, which amounted to about 225,000, was to the low figures of 45,000 in 1876, and 38,000 in 1877, or less than one-fifth of the previous maximum. In the present case the decline is from an average of over 300,000 in the years 1881 and 1882 to a minimum of 151,000 in 1885, or only about one-half of the previous maximum. If we could give similar figures for 1872 and 1873 as to persons of British and Irish origin only, a similar diminution of the amount of oscillation in 1881-85, as compared with 1872-77, would no doubt be apparent. In 1876-77 the net emigration of persons of British and Irish origin was about 35,000 only, on the average of the two years, the proportion to the population being 0·10 per cent. only. Now in 1885 the corresponding figure is more than three times as large, being 122,000, or 0·34 per cent. of the population. Emigration has thus kept at a higher level during the last minimum period than in the minimum period eight or nine years before. It is also to be noticed that the interval between the maximum and minimum period has been shorter than on the former occasion. Between 1873 and 1877, the previous maximum and minimum years, the interval was four years, while between 1883 and 1885 the interval is only two years. As emigration usually rises and falls according to the prosperity or adversity of trade generally, and particularly in the countries of destination of the emigrants, and among these chiefly the United States, the shortness of the recent interval between the maximum and minimum years of emigration would seem to show that the last period of prosperity was less prolonged than the former one, and the succeeding period of adversity, a turn having already come, would also seem to have been shorter. These facts would also appear to correspond with much other evidence as to the course of trade. The oscillations lately have been shorter and less marked than on former occasions. The prosperity of the prosperous period has shown a less advance as compared with the previous period of adversity than has sometimes been shown, and the succeeding decline has also been less, although the resulting depression may be as great because the decline is from a less height. Why the oscillation is shorter, why the prosperous period should come to an end sooner than usual, and why the succeeding period of depression should also be shortened, are matters which it would be out of place to discuss here. The facts are only noted for reference, and with a view to comparison with subsequent experience, when it is seen how long the new period of prosperity will last, and what will be the effect on emigration and immigration.

"The details furnished in the accompanying tables supply one or two other points for observation in regard to the increased emigration in 1886. Of the total number of emigrants, 173,979 are returned as adult males, as against 134,435 in 1885, showing an increase of 29 per cent., a rather higher rate than that shown if women and children are also included.

"If, however, we confine our attention to the *net* emigration of the year, it appears that the increase among adult males is from 66,141 in 1885 to 109,397 in 1886, an advance of no less than 65 per cent., as compared with an increase of 25 per cent. on the total *net* emigration.

"The contribution made by Irish emigration to the general increase in 1886 is very small, as will appear from the following table:—

(*d.*) *British and Irish Emigration in* 1886 *and* 1885.

Nationality of Emigrants.	1886.	1885.
English	146,301	126,260
Scotch	25,323	21,367
Irish	61,276	60,017
Total British	232,900	207,644

"Thus the increase of Irish emigration was only 1,259, or about 2 per cent. as compared with 1885, while in the case of both English and Scotch emigrants the increase is nearly one-sixth. The proportion of Irish emigration to the total emigration of persons of British and Irish origin has fallen to 26 per cent., a decline of 5 per cent. below the annual average for the period 1881-85. This decline is the more noticeable when it is remembered how large the proportion of Irish emigration has frequently been in previous years, rising in some cases to over 60 per cent.

"As regards the destinations of the emigrants, it is to be remarked that the United States still attract by far the greatest number, more than 70 per cent. of the total emigrants going thither.[1] Of emigrants of British and Irish origin only, 66 per cent. select the same destination, and this proportion also holds good if the *net* emigration only is considered. Next to the United States in attractiveness comes Australia, though the proportion of emigrants thither to the total number is hardly so large as in 1885. British North America, on the other hand, shows an increase both in the number and proportion of emigrants thither in 1886 as compared with 1885. Regard being had to the *net* emigration of

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[1] "In former reports attention has been drawn to the question of change of route in emigration itself, which may affect some of the figures. In fact, of late years a certain portion of the emigration from the United Kingdom has gone to the United States by way of the continental ports, Antwerp, Rotterdam, and Amsterdam. It would appear, however, that the number of emigrants proceeding by way of continental ports is small, and does not tend to increase materially. The following is an account of the emigration by this route in 1886, the figures being inserted here for future reference, and in continuation of those of last year:—

Nationality.	Adults.				Children under 12 Years of Age and Infants.		Total.	
	Married.		Single.					
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
English	364	265	916	195	131	141	1,411	601
Scotch	24	21	55	12	6	12	85	45
Irish	19	25	56	22	8	20	83	67
Total British	407	311	1,027	229	145	173	1,579	713
Foreigners	239	170	582	168	82	104	903	442
Grand total	646	481	1,609	397	227	277	2,482	1,155

persons of British and Irish origin, these colonies have received 17,578 emigrants in 1886, as against 10,517 in the year preceding.

"As regards Irish emigration, it has also again to be noted that the large proportion of females, and the small proportion of children, among emigrants of this nationality, to which attention has frequently been called, are still maintained. Males are about two to one, compared with females, among English and Scotch emigrants, but among the Irish the sexes are nearly equal; on the other hand, children are 17·8 per cent. of the English emigrants, and 20·6 per cent. of the Scotch, but among the Irish the proportion is only 11·2 per cent.

"With regard to statistics of occupations, it is difficult to ensure accuracy in the returns, nor are they by any means complete. One or two points, however, brought into prominence by these figures, may perhaps be noted.

"Of adult males, 62,680 are returned as 'general labourers,' and 16,719 as 'agricultural labourers, gardeners, and carters,' which figures would show that about three-sevenths of the adult British and foreign male emigrants from the United Kingdom can lay no claim to any technical skill. There is a noticeable increase in the number of emigrants classed as farmers and graziers, amounting to nearly 50 per cent., the figures being for 1886, 10,325, as against 6,968 for 1885.

"Liverpool continues to be the port of departure for nearly five-eighths of the total number of emigrants, London for one-eighth, the Clyde ports for a tenth, while about 9 per cent., a somewhat smaller proportion than usual, embarked in 1886 at Queenstown.

"Reference has been made in previous reports to the increase in the ordinary passenger movement between the United Kingdom and places out of Europe for purposes of business or pleasure, as distinguished from emigration in the ordinary sense. This increase was again continued in 1886, as will appear from the marked advance in the number of cabin passengers during the year shown in the following table:—

Number of Cabin and Steerage Passengers leaving the United Kingdom for Places out of Europe, in each of the Years from 1876 *to* 1886 *inclusive.*

Years.	Cabin Passengers.	Steerage Passengers.	Total.
1876 ………………	41,900	96,322	138,222
'77 ………………	37,147	82,824	119,971
'78 ………………	43,168	104,495	147,663
'79 ………………	43,928	173,235	217,163
'80 ………………	50,734	281,560	332,294
'81 ………………	54,270	338,244	392,514
'82 ………………	56,739	356,549	413,288
'83 ………………	55,840	341,317	397,157
'84 ………………	57,403	246,498	303,901
'85 ………………	51,428	212,957	264,385
'86 ………………	59,382	271,419	330,801

"From these figures it will be seen that the number of cabin passengers last year was the highest yet reached, exceeding the previous maximum (1884) by 1,979, and forming nearly 18 per cent. of the total number of emigrants.

"The usual tables are added, showing in detail the sex, age, condition, and occupations of the emigrants; the numbers departing from each of the ports of the United Kingdom; the particulars of detention money recovered by emigration officers; and (though the data for this return are necessarily very incomplete) the amount of remittances by settlers in the United States, British North America, and other places, to friends at home; together with comparative tables for series of years."

II.—*Effects of Import Duties in New and Old Countries.*

The following remarks on this subject have been received from Dr. Loria, Professor of Political Economy and Statistical Science at the University of Siena, Italy.

Dans le vol. xlix, part ii, du *Journal of the Statistical Society*, M. Bourne traite avec beaucoup de talent et de profondeur l'intéressant sujet des influences des droits protecteurs sur le commerce international, et explique les divers effets que les droits produisent, suivant qu'ils soient imposés dans les pays nouveaux, où la population est faible, ou dans les anciens pays, qui présentent une plus forte densité de population. Or, comme la démonstration de M. Bourne sur ce dernier point ne me semble pas parfaitement exacte, je me permettrai d'exposer quelques remarques, ou quelques doutes, sur les ingénieux développements donnés par cet éminent statisticien.

La thèse de M. Bourne peut se résumer de la façon suivante: Dans les vieux pays, ou la population est très dense, un droit protecteur est immédiatement avantageux, car il permet d'employer des ouvriers, qui resteraient nécessairement sans travail si les consommateurs demandassent des produits étrangers; mais le surplus de production, qui résulte de l'emploi des nouveaux ouvriers, crée bientôt un excés de production, d'où suit probablement une crise commerciale. En outre, cet accroissement de la production provoque la mise en culture des terres plus stériles, ce qui diminue le taux du profit. Au contraire, dans les pays nouveaux le droit protecteur donne un avantage réel et durable aux producteurs des marchandises protégées; mais cet avantage n'est que le résultat d'un impôt qui frappe tous les consommateurs, c'est-à-dire tous les autres producteurs.

Or il nous semble, avant tout, qu'on ne peut pas admettre que le droit protecteur permette de donner du travail à des ouvriers, qui, autrement, ne trouveraient pas d'emploi; car le nombre des ouvriers employables depend de la quantité de capital existante, et cette quantité n'est pas du tout augmentée par l'effet du droit. Si, avant l'imposition du droit, les consommateurs d'un produit donné achetaient cet-ci chez les étrangers, cela signifie qu'un nombre donné d'ouvriers devait être employé à la production des marchandises, qui étaient exportées à l'étranger en échange de cet produit. Et si l'importation de cette marchandise devient impossible par effet d'un droit, cela signifie qu'on devra employer à sa production ces mêmes ouvriers, qui étaient auparavant employés à la production de la marchandise, qu'on exportait pour obtenir de l'étranger le produit demandé. Mais tout cela n'augmentera pas la demande de travail, ni le nombre des ouvriers employés, ni donnera lieu à un excès de production. Après, si nous examinons les phénomènes qui se passent dans les pays nouveaux, nous trouvons que le droit protecteur y sera sans doute une charge pour les consommateurs (ainsi que le remarque M. Bourne), mais qu'à cette charge ne correspondera pas un avantage des producteurs, car cet avantage est incompatible avec la libre concurrence. La perte des consommateurs sera égale au surplus de frais qui charge la production nationale en dessus de la production étrangère, mais elle ne pourra pas éxceder cette mesure.

Si nous essayons d'exposer à notre tour la diverse influence du droit, suivant que l'on traite de pays surchargés de population ou de pays nouveaux, nous parvenons aux résultats suivants. Dans les pays qui présentent une forte densité de population et qui, par là même, sont surtout importeurs de blés, un droit protecteur, en arrêtant l'importation des vivres, donne lieu à une translation de capital de l'industrie à l'agriculture, et par là (comme le remarque fort justement M. Bourne) à la mise en culture des terreins plus inféconds ; ce qui élève la rente foncière, diminue le taux du profit, retarde les progrés de l'accumulation, augmente le nombre des hommes sans travail, et prépare les crises. Au contraire, dans les pays nouveaux, qui exportent les blés en échange des produits manufacturés, un droit protecteur qui arreste l'importation de ces produits, donne lieu à une translation de capital de l'agriculture à l'industrie ; d'où suit, d'un côté, que la culture des terres plus mauvaises est abandonnée, que la rente baisse et s'éléve le taux du profit ; de l'autre côté, que les produits manufacturés doivent renchérir, car leur production est à present plus coûteuse ; ce qui diminue les profits réaux mesurés dans ces mêmes produits. Si l'élévation du coût des articles fabriqués, qui résulte du droit protecteur, absorbe tout le surplus de profit que le droit lui-même a produit, en faisant baisser la rente foncière, l'influence du droit se reduit en dernière analyse à cette-ci : qu'une fraction du produit total, qui auparavant faisait partie de la rente foncière, vient à present agrégée au profit du capitaliste, mais que cet-ci doit tout-de-suite la transmettre au manufacteur, pour compenser les frais de production additionnels que le droit même a créés. Bref dans ce cas tout le montant du droit est payé sur la rente foncière, et le revenu du capitaliste reste identique, quelque qu'il soit le système commercial. Si toutefois l'élévation du coût des articles fabriqués, qui résulte du droit protecteur, n'absorbe qu'une partie du surplus de profit que le droit lui-même a engendré, l'influence definitive du droit protecteur est avantageux au capitaliste; d'où l'on deduit, que si dans les pays très-populeux, le droit protecteur avantage les proprietaires du sol, tandis que les capitalistes en sont appauvris dans les pays nouveaux il se passe le phénomène opposé, et le droit protecteur y profite au capital en dommage de la rente foncière.

Si les produits manufacturés protégés par le droit ne sont pas seulement consommés par le capitaliste, mais le sont aussi par le travailleur, le droit nuit au capitaliste, en tant qu'il éleve le coût du travail; mais cet dommage ne fait qu'affaiblir l'avantage que le droit protecteur assure au capital, en élevant le taux du profit moyennant la sortie de culture des terres moins productives.

Quelques économistes, ainsi que l'americain Hawley, croient que le libre-échange soit nuisible aux pays exporteurs des blés, parce qu'il y engendre la nécessité de cultiver des terres plus stériles, c'est-à-dire qu'il y déprime la "marge de la cultivation." Mais il y a là une méprise évidente. En effet, s'il est vrai que le libre échange éléve dans ces pays le coût du blé, dont il accroit la production, ce n'est pas moins vrai que l'accroissement du coût de production du blé doit être moindre que l'accroissement de coût auquel le pays devrait se soumettre, s'il produisait lui-même l'article fabriqué; car, s'il n'en fût pas ainsi, cet pays ne produirait pas le blé pour obtenir en échange l'article fabriqué, mais produirait cet-ci diréctement. Donc le libre échange ne peut jamais être cause d'un accroissement des frais, auxquels un pays peut se procurer les marchandises qui lui sont nécessaires. Mais le libre échange peut certainement être cause d'un accroissement de frais et d'une perte, qui frappe une classe sociale. En effet, dans le cas supposé d'un pays exporteur de blé, il se peut que l'accroissement de la rente dû à l'expansion de la culture sur les terres stériles, qui est un effet du libre échange, diminue le taux du profit en une raison plus forte, que la diminution du coût de production des articles manufacturés, due au libre échange, n'élève les profits réaux, mesurés en ces produits; et dans cette hypothèse le libre échange aura sans doute endommagé le capitaliste et reduit son revenu.

III.—*Notes on Economical and Statistical Works.*

Malthus and his Work. By James Bonar, M.A., Balliol College, Oxford. London: Macmillan and Co., 1885.

Mr. Bonar has brought one quality to bear upon his subject for which he deserves unstinted praise. There are abundant signs on almost every page of this book that the work of the writer has been in no ordinary sense a labour of love. The different editions through which the famous essay passed have been carefully studied and compared; and Mr. Bonar is not content with placing before us a detailed analysis of Malthus, the author, as he epigrammatically remarks (p. 5), of "an anonymous pamphlet in a political controversy," but he endeavours also to make us thoroughly

acquainted with Malthus, the exponent of general economic theory, and he goes yet further and presents to us Malthus, the moral and political philosopher. His work is divided into five sections or "books." The first of these deals with the essay itself: describes the circumstances under which the first edition was issued, indicates the changes which distinguished the second and subsequent editions from the first, and follows the exposition of Malthus in considerable detail. Indeed, as Mr. Bonar remarks in his "Introduction," "the detail" is his "main subject, and general theory the episode." In the second book he considers this "general theory," and contrasts the attitude of Malthus with that of Ricardo. In the third he adds to the "economics" of Malthus his "Ethics and Political Philosophy;" in the fourth he endeavours to "criticise the Critics of the Essay," and in the fifth and last his aim is to "help the reader to associate the living personality of the man with his writings." Whatever complaint, then, we may be compelled to urge against Mr. Bonar, we cannot with any fairness accuse him of lack of industry or of want of appreciation of his subject. And we may readily allow that his affection for Malthus has not made him blind to his faults, but that he has honestly endeavoured to give us a true portrait of the man and a discriminating analysis of his opinions. He has mingled censure with praise, and his censure is as just as his praise is hearty.

But so thoroughly has he steeped himself in the writings of his author that in some places it is difficult to distinguish between his own commentary and the original text; and we are not sure that in this respect he has entirely satisfied the canon he lays down (p. 409) that in "economical writing" clearness of meaning "is the first of virtues." Nor again can we help thinking that the tendency which has led him to discuss the moral and political philosophy of Malthus has been an influence for evil as well as for good. For the philosophical terminology which he so frequently employs must, we think, be regarded as scarcely appropriate to an economic treatise. In this special section indeed it is appropriate, but it is out of place in the other parts of the book. Distinctions between the "efficient" (p. 6) and "material" (p. 25) "cause" of the essay, between the "formal," the "material," the "efficient," and the "final cause" of value (p. 279) may, it is true, be intelligible to a student who knows his Aristotle, but are hardly so much a part of common speech as to be employed in the way in which they are here used by Mr. Bonar. And again it must be somewhat perplexing to the economic or general reader to find the claim allowed by the English Poor Laws described (p. 309) "in the language of Kant" as a "claim that could not be made universal without contradiction." But this use of philosophical phraseology is but one illustration of the dangerous tendencies of Mr. Bonar's literary style. He remarks (p. 227) with considerable truth that Perronet Thompson's *Catechism of the Corn Laws* is characterised by a "liveliness to which no other English economical writing has the slightest claim;" but his own efforts to avoid dulness seem to have led him into the opposite extreme. We are inclined to think that in his case—as in that of the anonymous author of the first edition of the essay (p. 410)—"the abundant metaphors" may be found to have "simply led to misunderstanding;" and that he would have done better, and his book have been more likely to secure the credit of "permanent usefulness," had he to some extent—like the author of the essay in the later editions—"deliberately renounced fine writing." In one place (p. 267) for example, the "apparent chaos" of the economic theory of Malthus is contrasted with the "apparent cosmos" of the Ricardian system; in another (p. 209) an analogy is drawn between the *Wealth of Nations* and the Bible, and we are told that it was "becoming clear" in Malthus' time that these economic "Scriptures were of doubtful interpretation," and that "men were to choose between the Calvinism of Ricardo and the Arminianism of Malthus;" and in somewhat the same strain the followers of Ricardo are distinguished (p. 298) as the "Minor Prophets." On another occasion (p. 55) the "ideal state" of the older economists is summed up as "anarchy *plus* the police constable;" and on another (p. 208) Malthus himself is described as "labouring to build up the neglected pathology of economic science." We have heard before of "Mother Earth," but, unless we are much mistaken, "Father Work" is the product of Mr. Bonar's efforts after antithesis. Such a style as this has of course its merits, but in Mr. Bonar's case it is, we think, carried to excess. He never gives the reader time to recover; but phrase comes after phrase, allusion succeeds to allusion, and epigram—to use his own words (p. 207)—follows "on the heels of" epigram. Bagehot, indeed, who is mentioned (p. 227, foot-note) as supplying a possible exception to the dulness of English economic writing, adopted a lively style; but he is an instance of the way in which this may be successfully done, and Mr. Bonar is rather an example of the mischievous results to which it may lead. Bagehot's allusions are generally familiar to the ordinary reader; Mr. Bonar's too often stand in sore need of an explanatory note. Bagehot was content to use the plainest and even ungrammatical English; Mr. Bonar prefers "genesis" to origin, "hegemony" to headship, "Hic jacet" to epitaph.

We may however forgive—although Mr. Bonar never allows us to forget—these extravagances of style, when we consider the service he has rendered to economics by endeavouring to separate the true from the false Malthus. Malthus, as he remarks (p. 3) has left a "book which no one reads and all abuse." At one time he has been charged with enunciating a "paradox;" at another he has been gravely condemned for giving utterance to a "truism." He has been most unfairly associated in the popular mind with "Malthusianism," and, by a still sterner irony of fate, with Neo-Malthusianism (*cf.* pp. 24, 168). The vulgar belief is that he denounced a large population, whereas he really said (p. 128):—"The denser the population the better," if it only be a "population of strong, comfortable citizens." The vulgar belief again is that he was a gloomy pessimist; but in reality he argued (p. 36) that "the people tend to increase more quickly than their food, not in order that men may suffer but in order that they may be roused to save themselves from suffering." For this misrepresentation, indeed, the circumstances under which the first and the succeeding editions of the essay were issued furnish some excuse. In its original form it was a controversial pamphlet, and naturally emphasised neglected truths. "Its main fault was not incompleteness, but wrongness of emphasis" (p. 42). "Having found the bow bent too much one way," remarked Malthus himself (p. 47), "I was induced to bend it too much the other in order to make it straight." Then it became a careful statistical treatise, and the mistaken emphasis of the first edition was corrected. But so complete a change as this supplies some justification at least for Bagehot's severe criticism that "in its first form the essay" "was conclusive as an argument, only it was based on untrue facts; in its second form it was based on true facts, but it was inconclusive as an argument." And yet, to measure the real importance of the essay, we have to remember that, although it may be possible to discover the origin of the phrases and thoughts of Malthus—as indeed of Adam Smith and many another writer—in his predecessors, yet he was the first to treat the subject in such a way as to reverse the tendency of popular opinion and legislative action; and that at a time when "statistics were a novelty his work as an interpreter" of statistical facts was a model of patient inquiry and careful verification. And again, when we turn from the special treatise to the general theory, we find indeed that he fell into the errors which were natural to a man of kindly heart who judged of the value of scientific research exclusively by its utility to mankind, but that he also anticipated "in outline" (p. 210) "the main truths which writers of our own time think they have established against Ricardo," that he insisted upon the important dictum that the possession of a certain amount of comfort is necessary before a class can hope to raise its standard of comfort, and that to him is largely due the credit of the "Ricardian" theory of rent. When we remember this we may subscribe in some measure at least to Mr. Bonar's estimate that he was the "second in time and honour" "of the three English writers whose work has become a portion of all Political Economy."

History of the Second Army Corps. By Francis A. Walker. New York: Charles Scribner's Sons, 1886.

We are so accustomed to regard the author of this volume as a professor that we have experienced some difficulty in speaking of him as a general. But the qualities which have won distinction for the professor are also to be found in the military narrative of the general. The lucidity of thought and statement which is everywhere apparent in his economic writings, which has enabled him to place in the clearest light the fallacies of the discarded theory of the wages-fund and to assign their true importance to the distinctive functions of the modern employer, which has helped him to pursue his way with almost unerring steps through the mazes of currency theories and monetary doctrine, and to supply a popular, but correct, exposition of the theory of rent, is conspicuous on every page of the military treatise. The details and motives of military tactics, the positions and movements of opposing troops, appear to us to be described with a clearness which could hardly be surpassed. And, just as in his economic writings the student is constantly assisted by differences of type, so in this book a series of excellent maps enables him to follow with sustained intelligence the history of military campaigns. And once more the vividness of style which has in his *Political Economy* created an interest in economics in the minds of readers who never felt such an interest before, and awakened into fresh activity the slumbering interest of those who had come to associate economic writing with dulness and perplexity, enables him in this book to make us thoroughly realise the din and turmoil, the stress and bustle, the enthusiasm and excitement of military conflict. "Professor" Walker is never afraid of trying to make his meaning clear to the economic student by the use of unconventional phraseology; and "General" Walker's narrative is rendered by similar means as intelligible to the ordinary reader as, we imagine —although indeed on this point we do not feel competent to pronounce a definite opinion—it must be instructive to the military student. Another quality is common to his economic and his military writing; and that is the frankness with which he criticises those from whom he differs in opinion. He is as outspoken in his censure of the blunders of the civil authorities at Washington, and the mistaken estimates of the enemy formed by McClellan and Burnside, as he is unsparing of the fallacies of the wages-fund, of the extravagances of the "Manchester School," and of the mistakes of "potato philosophers." And, on the other hand, the heartiness with which he recognises the merits of his economic predecessors —as for instance in the cases of Cairnes and his "non-competing groups," of Mill and international trade, of Ricardo and monetary doctrine—finds its counterpart in his praise of Sumner and Couch, of Hancock, Warren, Humphreys, and Morgan. His judgment, again, in bestowing this eulogy or censure, in estimating merits or demerits, appears to us—although we cannot speak with the authority of experts—to be as sober and weighty here as it undoubtedly is in his economic writings. It is hardly necessary to add that the statistical material which the volume contains is handled with the excellence and thoroughness which were only to be expected in a statistician of the standing and practical experience of Professor Walker. The original composition of the Second Army Corps and the successive changes that it underwent are carefully noted. The death-rolls of battles, the lists of officers, of engagements and of noteworthy places contained in the several appendices are models of what, we conceive, such appendices should be. In short we have in this book a history of the corps which throughout the struggle between the North and the South was continually in the thickest of the fray—a history which for minuteness of detail, for liveliness of narration, for fairness and candour of judgment, could hardly be excelled—and a history which records some of the most stirring and noteworthy incidents in a contest which may fairly be termed the most stirring and noteworthy of modern times. It may be fanciful, but we cannot help tracing to Professor Walker's connection with this conflict the origin of those qualities which distinguish his economic writings from those of other authors. A man who was acquainted with such scenes as are narrated in this book could not fail to appreciate the stern logic of facts however much it might be in apparent conflict with preconceived theory; a man who could recall occasions when life and death were the stakes for which the players were contending, and when conventionalities were perforce exchanged for plain realities, could not but be vivid in description and untrammelled in language; and a man who had taken part in events where a blunder meant the loss, and an inspiration of genius the preservation, of hundreds—perhaps thousands—of lives would have been strangely forgetful of the past had he not been outspoken in his censure and hearty in his praise. If it be true that the child is the father of the man, in this case we may surely hold that the general has been the parent of the professor.

Uebersichten der Weltwirthschaft. Von Dr. F. X. Neumann-Spallart. Jahrgang 1883-84. Stuttgart: Julius Maier, 1887.

A new edition of Dr. Neumann-Spallart's *Uebersichten* is sure to meet with a grateful welcome from economic and statistical students. The high reputation of the author and the recollection of previous editions would be sufficient to insure this result, even if the fresh edition itself were not able to rely with confidence upon its own special merits for a favourable reception. Dr. Neumann-Spallart is so untiring in his researches that we may be certain that he at least has laid under contribution all available sources of trustworthy knowledge; and he is so thoroughly imbued with a sense of the true functions and great responsibilities of the statistician that we know that in this case we shall be supplied not merely with figures, but with the names of the authorities from whom these figures are taken. And in this way our confidence in Dr. Neumann-Spallart may be said to rest on a double foundation. We can rely upon his experienced discrimination in selecting his authorities; and we have an opportunity—such as is only too frequently withheld from us by other statistical writers—of exercising our own judgment—though in the case of Dr. Neumann-Spallart this is rarely, if ever, necessary—in estimating the value of the authorities he has consulted. Those who are familiar with previous editions of this book will find that the present edition is characterised by the same excellence of thorough treatment and systematic arrangement which they have come to associate with all Dr. Neumann-Spallart's statistical work. But the figures are of course brought down to a more recent date; and the interesting and instructive summary of the economic progress of the world in the decade extending from 1870 to 1880, which was given in the edition of 1881 and translated in the March number of this *Journal* for 1882, is now carried on to 1884, and, in many cases, to the following year. The triple division of the "symptoms" which indicate the economic changes of societies is still maintained. The "primary symptoms," which are the necessary causes of economic effects, and are to be found in statistics of production and consumption; the "secondary symptoms," which are consequent upon the "primary," and are discovered in statistics of wages and prices, of rates of discount and issues of capital, of dividends and failures; and the "reflective symptoms," which arise from, and react upon, the two previous classes, and are concerned with such matters as strikes, emigration, and pauperism, are all treated in this edition in a similar way to that adopted in the edition of 1881; but the illustrative figures for later years are added to those previously given. It is true, indeed, that in such statistical inquiries we must be sometimes content with "symptoms" which may, or may not, be causally connected with social phenomena. It is true that these symptoms themselves are often difficult to measure with accuracy and to express with exactitude. But, despite of these and similar drawbacks, it is impossible to doubt that such a method of inquiry conducted by such a careful inquirer as Dr. Neumann-Spallart is of no little value, and is likely indeed to lead to important results. By the concurrent examination of these different symptoms we can at least arrive at conclusions of high probability, and even venture to predict with some approach to confidence the economic history of the future, and determine whether it is to be one of advance or retrogression, of increasing prosperity or accelerated decay. In these days, when the air is full of pessimistic predictions which have indeed but little—if they have any—connection with statistical fact, it is encouraging to find that Dr. Neumann-Spallart's investigations have led him to take a cheerful, and not a despondent, view; and the thoroughness of his method enables us to rely upon his results.

The Claims of Labour . . . 275 pp., 8vo. Edinburgh, 1886.

This volume, consisting of a course of lectures on various aspects of the Labour Question, owes its existence to the unappropriated balance of the 1,000*l.* set aside by the anonymous promoter of the Industrial Remuneration Conference held in Princes Hall in January, 1885. Mr. Burnett's lecture on Trade Unions, with which the volume opens, as a means of improving the conditions of labour, and Mr. B. Jones's lecture on What is meant by Co-operation, do not contain any thing novel; Mr. Patrick Geddes's lecture on the Conditions of Progress of the Capitalist and of the Labourer, is really an appeal to the labourer to have higher aims than those now generally attributed to him, and by means of which aims the lecturer hopes to see material improvement follow in due course. This lecture, in contradistinction to so many lectures given to the working classes, has little to say of the labourer as a hero; indeed, the author looks upon both labourer and capitalist as alike human, and apt to err. An interesting lecture or paper is by Mr. Alfred Russel Wallace, who deals with a painfully familiar subject, the Depression of Trade, its Causes and Remedies. After a brief reference to some absurdities which have been stated in connection with this depression, Mr. Wallace describes the main features thereof, stating that it begun about 1870, and ascribing it to universal impoverishment. This universal depression is brought about by foreign loans, the greater part of which never reached the people who are taxed to pay the interest thereon, who consequently have not so much to spend, and therefore cannot buy our goods. He roughly estimates the new debts created from 1863 to 1875 at nearly 1,500 million pounds sterling, and states that England lent nearly half of this amount. The next cause of impoverishment is ascribed to the increased war expenditure, which for the continent has increased from 96 to 150 million pounds sterling per annum, with a standing army of 7 million men, entirely devoted to preparation for the work of destruction. The author then sets to work to show how these facts tend to the universal impoverishment. He then attacks the very wealthy, points out that millionaires are on the increase, and then gives facts to prove that poverty is increasing in a like ratio. Speculation—or in other words the Limited Liability Act—also comes in for its share in causing the present depression, and to this more than to any other cause does the lecturer ascribe the trade troubles in the United States. Those who heard Mr. Wallace speak at the reading of Mr. Booth's paper last June will not be surprised to see that the last and very important cause is ascribed to the depopulation of the rural districts, due to our system of monopoly in land. The depreciation of silver or the improvidence of the working classes are not enumerated among the causes of depression. The author shows weakness in his contentions concerning the millionaires, and likewise in the proof (?) he gives of increasing poverty. Considering the British large export trade, a decrease of 20 per cent. from 1871 to 1881 in the persons (p. 131) engaged in the cotton manufacture is no proof of increased poverty, any more than, considering the very large extent in which music now finds its way among the poor, is the increase, during the same period, of 23 per cent. in the number of musicians and musical instrument makers (p. 131), a proof that the rich are growing richer. Nevertheless the lecture appears of some interest from a certain point of view, though deficient in scientific method, Mr. Wallace making very little comparison with former depressions. Mr. William Morris, in the Labour Question from a Socialist standpoint, desires complete State employment and regulation of labour, and as a sample of his arguments we may refer to p. 177, where he states that the judge, the magistrate, the policeman, and the soldier are the sword and pistol of the modern highwayman —society—aided by the mask of morals and religion. Professor Foxwell concludes the volume with a very able lecture on the Irregularity of Employment, and the Fluctuation of Prices.

Les Dettes Publiques Européennes. By Alfred Neymarck. 102 pp., 8vo. Paris, 1887.

In this pamphlet the editor has published the official statistics of the State debts of Europe, handed to him by request by the respective European heads of the financial or statistical departments. We have therefore a complete and accurate statement of the debt of every European country, together with information as to the rate of interest, increase or decrease of debt, manner in which the loans have been raised and the latest market quotations, together with particulars of a more financial nature. In the notes are also contained explanations as to whether the loans have been raised for railway or for other purposes, and occasionally some facts concerning the last budgets are given. M. Neymarck calls attention to the very large increase in the amount of public debts since the year 1870, and from the tabulated statement on p. 87, it appears that France and Russia, who head the list by a very long way indeed, have increased their debts by 480 and 440 million pounds sterling respectively; while on the other hand England and Denmark are the only two States who have reduced their debts during the same period. The author asks (p. 89) by how much could not these debts be removed if war expenditure did not absorb every year 85 per cent. of them, and concludes as an answer that the danger to be apprehended from these overwhelming debts is very serious. On p. 90, *et seq.*, he remarks on the extraordinary development of the conversions of public debts which have been so frequent of late years. He also comments on the circumstance that while France has lent money to every State but Germany, hardly another State, but England and the Netherlands, lends her money in return; he considers this a disadvantage, and proposes that measures should be taken to make French rentes popular in other countries. Finally, M. Neymarck returns again to the charge of the burden of war expenditure, and gives it as his opinion that the people will before long grow sick of this sort of dead weight.

The Financial and Economical Progress and Condition of Netherlands India during the last Fifteen Years, and the Effect of the Present Currency System. By N. P. Van den Berg, LL.D. iii + 50 + xxiii pp., 4to. Batavia.

The Government of India, without any intention of proposing any change in the monetary standard of India, has been nevertheless anxious to obtain information regarding the economic condition and progress of Java under the gold standard, and to this end it has been most fortunate in obtaining the voluntary assistance of M. Van den Berg, whose lucid financial summary, in reply to the questions of the Indian Government, now lies before us. The figures M. Van den Berg offers for consideration deal with the years 1871-84 inclusive, excepting only such figures which represent foreign exports, which, in consequence of an alteration in the method of collection, are only available for comparative purposes from 1874 onwards. The statistics here supplied deal with an area covering 30,232 square geographical miles, and with a population numbering 27,303,782 souls. Up to 1875 inclusive the budgets showed a considerable surplus, but from that date to 1884 inclusive there has been an annual deficit, amounting in the aggregate for these nine years to nearly 77 million florins. The revenue, owing to the fluctuations in the price of government produce, naturally varies very much; the expenditure, on the other hand, is noticeable on account of its rapid increase, almost 50 per cent. in the years 1871-76, and its almost stationary and latterly declining character since. The budget making is carried on under considerable difficulties. The Netherlands Indian officials have to prepare their budgets some eighteen months before the otherwise requisite period, in order that it may be submitted to the Home Government before it comes into force. The increase in the expenditure M. Van den Berg attributes to the following causes: the Acheen war, costing an increased outlay in the period under review of 240 million florins, the expenses in connection with the stamping out of the cattle plague, 14½ million florins, and the construction of railways and harbour works, which are paid for out of *current revenue*, 79½ million florins, making a total of 335 millions. In addition to this, Netherlands India has contributed to the Home Government no less a sum than 82 millions for home fortifications, government expenses, debts and deficits. Pensions, and the cost of increased jail accommodation, necessitated by the abolition of flogging, have also added their quota to the growing expenditure. In the meanwhile, as its only debt is the amount of 45½ million florins placed to its debit in the Dutch 4 per cent. loan of 60 millions, the fiscal management of Netherlands India must be considered satisfactory. Against this set of figures there is another inquiry to be made. How has the government succeeded, in spite of the heavy fall in prices of export articles, to raise the necessary revenue to meet its increased expenditure? The taxes must weigh heavily on the people. Cultivated land is taxed at the rate of ⅓ to ½ of the estimated gross produce for irrigated lands, and ¼ to ⅖ for non-irrigated lands. The lease of waste lands brings in a small sum annually. The customs duties on several imports is 10 per cent. *ad valorem*, and on cotton and woollen piece goods, earthenware, &c., 6 per cent.; there are export duties on tin, sugar, coffee, hides, indigo, bird's nests, and tobacco. The revenue from opium has doubled, in spite of the government assertion that its consumption is discouraged. Salt and tin are government monopolies. The culture of indigo, tea, cinnamon, cochineal, tobacco, and pepper, on government account has been given up; that of sugar is to be given up in 1890. Coffee is the only culture which has proved permanently profitable to the finances. The revenue from the Forest Department is small, amounting to 101,064 florins in the 1886 estimate. The net receipts of the government railways during the last three years have averaged over 4 millions annually. With regard to the trade of these colonies, the import trade has increased since 1875 by 15 per cent., an increase ascribed to importation by government of railway plant, &c., and the export trade has decreased by 2½ per cent. Calculated on the system of index numbers, the retail prices of commodities compared with those of the years 1871-73, stand now as 130 to 100, a notable increase; but there has been a considerable decrease for the year 1886. In the wages of clerks and of public servants there has been no material alteration. Industrial enterprise is carried on wholly by Europeans, and as of these the sugar industry is by far the most important, the great fall in the price of this article, in connection with the similar fall in the price of coffee, is the cause of an almost universal decline in the general welfare of the colonies. M. Van den Berg, while admitting that Netherlands India is only suffering in the depression common with other countries, appears to think that the gold standard adopted by Holland may have had a tendency to aggravate the position. He also appears (p. 36) to be of opinion that a remedy is to be found in the adoption of a regulated bimetallism for Netherlands India, an adoption which, according to his views, would recoup the colonies for all their previous losses. Statisticians and economists generally, who desire to grasp the financial and economical position of Netherlands India, cannot do better than to peruse M. Van den Berg's able work from which the above information is taken.

IV.—*Additions to the Library.*

Additions to the Library during the Quarter ended 30*th June*, 1887, *arranged alphabetically under the following heads:*—(a) *Foreign Countries;* (b) *India, Colonial and other Possessions;* (c) *United Kingdom and its several Divisions;* (d) *Authors, &c.;* (e) *Societies, &c.* (*British*); (f) *Periodicals, &c.* (*British*).

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(a) Foreign Countries.	
Argentine Republic—	
Datos anuales del Comercio Exterior. Año 1886, No. 52	The Argentine Legation, London
Buenos Ayres—	
Boletin mensual de Estadistica Municipal de la Ciudad de—. Año I, Enero—Marzo, 1887. Plans, 8vo.	The Statistical Bureau of Buenos Ayres
Bulletin mensuel de Démographie de la Ville de—. VI^e année. Nos. 1—3. 1887	Dr. E. R. Coni
Austria and Hungary—	
Hungary—	
Magyarország Aruforgalma Ausztriaval es mas Orszagokkal. (Trade Statistics.) Fuzet 12, 1886 Statistisches Jahrbuch für Ungarn. XV Jahrgang, 1885. Heft 6. Die Creditinstitute im Jahre 1885. Heft 9. Cultus und Unterrichtswesen im Jahre 1885 Ungarns Waarenverkehr mit Oesterreich und Anderen Ländern für das halbjahr 1886 vom monate Juli bis ende Dezember	The Royal Hungarian Statistical Bureau
VILLE DE PRAGUE. Bulletin hebdomadaire de la—, et des Communes-faubourgs. (Current numbers)	The Statistical Bureau of Prague
Belgium—	
Annales des Travaux Publics de Belgique. Troisième Cahier, Tome xliv. Plans, 8vo. 1886	The Administration of Mines
Ville de Bruxelles—	
Annuaire Démographique et Tableaux Statistiques des causes de Décès, 1886. XXV^e année. Map, diagram Bulletin hebdomadaire de Statistique Démographique et Médicale. (Current numbers)	Dr. E. Janssens, Brussels

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(a) **Foreign Countries**—*Contd.*	
Bulgaria. Statistique du Commerce de la Principauté de Bulgarie avec les Pays Etrangers pendant l'année 1883	The Statistical Bureau
China—	
Imperial Maritime Customs—	
I. Statistical series: No. 2. Customs Gazette, July—Dec., 1886, with an Appendix giving the statistics of the Trade of Corea II. Special series: No. 2. Medical Reports for the half-year ended 30th September, 1886. 32nd issue. Plates and diagrams III. Miscellaneous series: No. 6. List of the Chinese Lighthouses . . . for 1887. Maps and diagram	Sir Robert Hart, K.C.M.G., Peking
Journal of the China Branch of the Royal Asiatic Society. New series, vol. xxi, Nos. 3 and 4, 1886. (Contains a Paper on "Chinese Guilds or Chambers of Commerce and Trades Unions" by D. J. Macgowan)	The Society
Denmark—	
Danmarks Statistik. Statistisk Tabelværk. Fjerde Række—	
Litra A, No. 5 (Marriages, Births, and Deaths, 1880-84) Litra D, No. 9, *b*. (Imports and Exports; Production of Brandy and Beet Sugar in 1885)	The Royal Statistical Bureau of Denmark
Nationalökönomisk Tidsskrift. Ny Række. Hefte 2. 1887	The Danish Political Economy Society
Egypt. Bulletin mensuel du Commerce Extérieur de l'Égypte. I^{ere} année, Nos. 2 et 3, 1887, avec supplément	A. Caillard, Esq., Director - General of Customs
France—	
Ministère de l'Agriculture. Bulletin. VI^{e} année, Nos. 1 et 2, 1887	The Ministry of Agriculture
Ministère des Finances. Bulletin de Statistique et de Législation comparée. Mars—Mai, 1887	M. A. de Foville, Paris
Ministère des Travaux Publics. Bulletin du—. Statistique et Legislation comparée. Fevrier, 1887	The Ministry of Public Works
Ville de Reims. Bulletin Mensuel du Bureau Municipal d'Hygiène. Fevrier—Avril, 1887	The Bureau of Hygiène
L'Economiste Français. (Current weekly numbers)	The Editor
Revue Bibliographique Universelle, Paris:—	
Partie Littéraire. Avril, Mai, 1887 ,, Technique. Mai, 1887	,,
Revue Géographique Internationale. Fevrier, 1887	,,
École Libre des Sciences Politiques. Annales de l'—. II^{e} année, No. 2, 1887. Les Chambres de Commerce, Étude sur leur Rôle Financier et sur les récents projets de réforme soumis au parlement	The Institution

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français, par *L. Poinsard.* La Politique française au Congrès de Rastadt (1797-99) (*suite*), par *R. Kœchlin.* La péréquation de l'Impôt foncier, par *E. Eymond.* La mission du Marquis d'Eguilles en Ecosse auprès de Charles-Edouard (1745-46), par *G. Lefevre-Pontalis.* Le Kulturkampf, par *H. Begouen.* *Correspondances:* L'Organisme Departemental au Japon (*Fin*), par *L. Pasmentry*	The Institution
Société de Statistique de Paris, Journal de la—. 1887—	
Avril. Les Cartogrammes à teintes graduées, par *E. Cheysson.* Le Progrès des Caisses d'Epargne en Europe et aux États-Unis, par *M. de Malarce.* *Bibliographie.* La Population de Francfort aux XIV^e et XV^e Sièeles, par *A. Raffalowich.* L'Ancienne Civilisation au Mexique, par *A. Nicaise* .... Mai. La Protection de l'enfance abandonnée en Italie, par le Dr. *E. Raseri.* La Rage et l'Institut Pasteur Juin. Les Transports terrestres et fluviaux, par *C. Limousin.* Les premiers Résultats du Dénombrement de 1886, et les communes de moins de 100 habitants, par *E. Cheysson.* Les Excitants modernes, par le Dr. *Broch.* Map	The Society
Revue d'Economie Politique. *I^{ere} année*, 1887—	
No. 1. Notre Programme. De l'Enseignement de l'Economie Politique, par *A. Jourdan.* La Hausse des Salaires au XIX^e Siècle en France et à l'Etranger, par *P. V. Beauregard.* Des Théories sur l'Impôt en Australie au XIX^e Siècle, par *E. F. De Flaix.* Société d'Economie Politique de Lyon. Des moyens de développer nos exportations, par *P. Rougier.* Chronique, par *C. Gide.* No. 2. Le Socialisme aux États-Unis, par *L. Gronlund.* Le Droit naturel de l'Economie Politique, par *E. Villey.* Des changements de la Valeur de la Monnaie, par *M. Mongin.* De la Part relative attribuée aux Salaires dans le produit net de l'Industrie, par *P. V. Beauregard.* La marque municipale des Soieries Lyonnaises, par *J. Rambaud* No. 3. De la Science Economique Moderne, par *H. D. Macleod.* La notion de la valeur dans Bastiat au point de vue de la justice distributive, par *C. Gide.* Le rôle de l'Etat et l'Economie Politique, par *J. d'Aulnis de Bourouill.* Quelques observations sur la valeur de la Monnaie, par *J. Aubry*	The Editor
Germany—	
Monatshefte zur Statistik des Deutschen Reichs. Februar—April, 1887 Statistik des Deutschen Reichs. Neue Folge, Band 24. Statistik der Krankenversicherung der Arbeiter im Jahre 1885	The Imperial Statistical Bureau

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Prussia. Preussische Statistik. lxxxvii. Die Sterblichkeit nach Todesursachen und Altersklassen der Gestorbenen sowie die Selbstmorde und Verunglückungen im preussischen Staate während des Jahres 1884	The Royal Statistical Bureau of Prussia
Saxony. Zeitschrift des K. Sächsischen Statistischen Bureaus. XXXII Jahrgang, 1886. Heft 3 und 4.	The Royal Statistical Bureau of Saxony
Berlin. Veröffentlichungen des Statistischen Amts der Stadt Berlin. Eheschliessungen Geburten, Sterbefälle und Witterung. (Current numbers)	The Statistical Bureau of Berlin
Frankfort—	
Beiträge zur Statistik der Stadt Frankfurt-am-Main. Band v, Heft 1, (contents). Die Ergebnisse der Volkszählung vom 1 December, 1885. Statistik der bebauten Grundstücke und Gebäude Jahresbericht des Frankfurter Vereins für Geographie und Statistik. Fünfzigster Jahrgang, 1885-86. Portrait, 8vo.	The Geographical and Statistical Society of Frankfort
Leipzig. Vereins für Erdkunde zu Leipzig. Mittheilungen des,—1884 und 1885, 2 vols. Maps and diagram, 8vo.	The Society
Technische Mitteilungen für Malerei. Jahrgang iv. Nos. 32 and 33, 1887	The Editor
Guatemala. Informe de la Direccion General de Estadistica, 1886. 8vo.	The Statistical Bureau
Italy—	
Annuario Statistico Italiano, anno 1886. 8vo. Annali di Statistica. Statistica Industriale. Fasc. 4 e 5. Maps	The Director-General of the Statistics of Italy
Annali di Agricoltura, 1887—	
No. 123. Atti della Commissione Consultiva per la Pesca. Sessione Febbraio, 1887 No. 124. Scuole Superiori Agrarie all' Estero No. 125. I Libri Genealogici del Bestiame Rurale. Plates No. 126. Zootecnia. Provvedimenti a vantaggio della produzione equina nell' anno 1886 No. 128. Istruzioni Pratiche per conoscere e combattere la peronospora della vite	The Director-General of Agriculture
Bilancio Tecnico del Monte Pensioni per gli Insegnanti Pubblici Elementari. Diagrams, 4to. 1887	The Director-General of the Public Debt
Bollettino Consolare. 1887—	
Gennaio. (Relating to) the Congo; *England*—Manchester; Switzerland; Bavaria; Baden; Tunis; *Ionian Islands*—Corfu; *Egypt*—Suez Canal; Valenza; *Turkey*—Scutari; *Russia*—Batoom; *Argentine Republic*—Buenos Ayres; *Chili*—Santiago; Trinidad Febbraio e Marzo. (Relating to) Austria-Hungary; United States; *Netherlands*—Amsterdam; Ireland; Germany; *Russia*—Odessa; New South Wales; Mauritius; Spain; St. Helena	The Director-General of the Statistics of Italy

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(a) Foreign Countries—*Contd.*	
Italy—*Contd.*	
Bollettino di Legislazione e Statistica Doganale e Commerciale. Anno IV. Marzo e Aprile, 1887 .... Bollettino mensile delle Situazioni dei Conti degli Istituti d'Emissione. Anno XVIII, Nos. 2 e 3, 1887 Bollettino di Notizie sul Credito e la Previdenza. Anno V, Nos. 4—7, 1887 .... Bollettino Settimanale dei Prezzi di alcuni dei principali Prodotti Agraria e del Pane. (Current numbers) Casse di Risparmio. Anno III. Bollettino del 1° Semestre 1886. La. 8vo. .... Movimento degli Infermi negli Ospedali civili del Regno. Anno 1884	The Director-General of the Statistics of Italy
Relazione del Direttore Generale alla Commissione di Vigilanza sul rendiconto dell' amministrazione del Debito Pubblico per l'esercizio dal 1 luglio, 1885, al 30 giugno, 1886. Diagram, 4to.	The Director-General of the Public Debt
Statistica del Commercio Speciale di Importazione e di Esportazione. Febbraio—Aprile, 1887 .... Statistica Giudiziaria Civile e Commerciale per l'anno 1884 .... Statistica Giudiziaria Penale per l'anno 1884 .... Statistica dell' Istruzione Secondaria e Superiore per l'anno scolastico 1884-85 .... Statistica dell' Istruzione Elementare per l'anno scolastico 1883-84	The Director-General of the Statistics of Italy
L'Economista. (Current weekly numbers.) Florence	The Editor
Giornale degli Economisti. Anno II, 1887. Fasc. 3. Commemorazione di Marco Minghetti: *F. Lampertico.* La educazione Industriale in Italia e la scuola di Vicenza: *E. C. Boccardo.* Un nuovo trattato di Economia sociale: *C. F. Ferraris.* La mobilizzazione della proprietà fondiaria secondo il sistema Torrens: *A. Rabbeno*	„
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Statistical Year-book of Japan, fifth year, 1884. (In Japanese) .... Table des matières de l'Annuaire Statistique du Japon, Ve année, 1884. 8vo....	The General Bureau of Statistics, Tokyo
Netherlands—	
Statistik der Geboorten en der Sterfte, naar den Leeftijd ende oorzaken van den dood in Nederland. October—December, 1886	The Department of the Interior
Alfabetisch Register op de zes en dertig Jaargangen (1849-84) van het staatkundig en staathuishoudkundig Jaarboekje . . . 8vo.... Bijdragen van het Statistisch Instituut. No. 1, 1887. Derde Jaargang. Diagrams	The Statistical Institute, Amsterdam
Roumania—	
Mouvement de la Population de Roumanie pendant l'année 1885	The Statistical Bureau, Bucharest

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(a) **Foreign Countries**—*Contd.*	
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Statistica Judiciara din Romania pe anul 1882 Statistica Medicala din Regatul Român pe anul 1881	The Statistical Bureau, Bucharest
Revue Générale du Droit et des Sciences Politiques I^{e} année 1887. No. 3. Du régime municipal romain par *J. Kalindero*. De l'Organisation des anciennes Juridictions en Roumanie, par *G. G. Tocilesco*	The Editor
Russia—	
Journal of the Ministry of Finance. (Current weekly numbers.) (In Russian.) 1887	M. A. Vessélovsky, St. Petersburg
Returns of Imports of Foreign Goods from abroad for the years 1869-86 inclusive. (In Russian.) 12mo. Returns of Exports of Russian Goods to Foreign Countries for the years 1869-86 inclusive. (In Russian.) 12mo.	The Customs Department, St. Petersburg
Spain—	
Memorias Comerciales y Suplemento, 1887—	
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Boletin de la Sociedad Geografica de Madrid. Noviembre—Febrero, 1886-87	The Society
Sweden and Norway—	
NORWAY—	
Norges Officielle Statistik. Tredie Række—	
31. Beretning om Sundhedstilstanden og Medicinalforholdene i Norge i aaret 1884. (Sanitary state of the Kingdom) 32. Tabeller vedkommende Norges Kriminalstatistik for aaret 1883. (Criminal Statistics) 33. De offentlige Jernbaner. Beretning om de norske Jernbaners Drift i Terminen 1ste Juli, 1885, til 30te Juni, 1886. (Public Railways) 34. Tabeller vedkommende Norges Skibsfart i aaret 1885. (Shipping) Meddelelser fra det Statistiske Centralbureau. Fjerde Bind, 1886	The Central Statistical Bureau, Christiania

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Sweden and Norway—*Contd.*	
SWEDEN—	
Bidrag till Sveriges Officiela Statistik—	
A. Befolkningsstatistik. Statistiska Centralbyråns underdåniga Berättelse för år 1885. (Movement of Population)	The Central Statistical Bureau, Stockholm
L. Statens Jernvägstrafik. Allmän Svensk Jernvägsstatistik för år 1885 . . . (Railways). Map	
R. Valstatistik. Statistiska Centralbyråns underdåniga Redogörelse angående Valrätt till Riksdagens andra Kammare år 1885. (Electoral Statistics)	
X. Aflönings- och Pensionsstatistik. Statistiska Centralbyråns underdåniga Berättelse afgifven den 1 Mars, 1887. (Salaries and Pensions)	
Statistisk Tidskrift. No. 1, 1887. 8vo.	
Switzerland—	
Emigration de la Suisse pour les pays d'outre-mer depuis 1882 et particulièrement en 1886. Sheet	The Federal Statistical Bureau
Journal de Statistique Suisse—	
1886, Hefte 3 und 4. Eröffnungsrede an der Jahresversammlung der schweizer. statistischen gesellschaft in Basel, 1886. Ein und Ausfuhr der Schweiz im Jahre 1885. Ueber die Produktion der Landwirthschaft. Die Branntweinbrennerei in der Schweiz, 1885-86. Allgemeine Resultate betreffend die Trauungen, Geburten, und Sterbefälle im Jahre 1885. Banques d'Emission suisses, Circulation des Billets de Banque, 1871-85 Situation des 33 banques d'emission suisses pour l'année 1885. Funfzehnte Jahresversammlung der schweizerischen Statistischen Gesellschaft. Statistik der Sparkassen der Schweiz, 1882. Lebenszeichen aus den Kantonen. Table systematique des matières contenues dans les 6 volumes de 1881-86	
1887, Hefte 1 und 2. Zur Statistik der inneren Wanderungen und des Niederlassungswesens. Beiträge zur schweizerischen Forststatistik. Statistik der gegenseitigen Hilfsgesellschaften der Schweiz im Rechnungs jahr 1879-80. Die Zeitungen der Schweiz am Anfang des jahres 1887 nach der von der Postverwaltung ausgegebenen Preisliste. Getreidepreise auf den Haupt—Markten der Schweiz von 1882 bis 1886. Hopfen. Produktion und Verbrauch aller Länder der Welt. Die Hauptergebnisse der Obstbaumzahlungen einiger Kantone. Ein kapitel aus der französischen Socialpolitik unserer zeit. Die Bedentung der ziegenwirtschaft für die schweizerischen Gebirgsgegenden in forstlicher und Statistisch-volkswirtschaftlicher Hinsicht. Ueber die Vornahme einer Gewerbestatistik im Kanton	

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Bern. Die Lehrerschaft des Kantons Bern am 1 Februar, 1887. Schweizerische Literatur über Volkwirtschaft. Die uberseeische Auswanderung aus der Schweiz im Jahr 1886. Frequenz des eidg. Polytechnikum seit der Eröffnung (1855)	The Federal Statistical Bureau
Statistique de la Suisse. 66^e Livraison. Mouvement de la Population pendant l'année 1885. Maps	
Loi Fédérale concernant la surveillance des entreprises privées en matière d'assurance (du 25 Juin, 1885). 8vo.	The Federal Assurance Bureau
Règlement concernant les cautionnements des Compagnies d'Assurances (du 12 Octobre, 1886). 8vo.	
Règlement concernant la contribution à payer par les Compagnies d'Assurances (du 29 Octobre, 1886). 8vo.	
Rapport du Département Fédéral du Commerce et de l'Agriculture sur sa gestion en 1886. 5^e Division. Assurances. 8vo.	
United States—	
Tenth Census of the United States, 1880. Vol. xviii, Report on the Social Statistics of Cities. Part 1, the New England and the Middle States. Maps and plans. 1886..........	The Hon. G. F. Hoar, Washington
Department of Agriculture. Monthly Reports on the Condition of Crops, &c., March—May, 1887	The Department of Agriculture
Annual Report of the Comptroller of the Currency. December, 1886. Diagram	The Comptroller of the Currency
Circulars of Information of the Bureau of Education—	
No. 1. Study of Music in Public Schools, 1886	The Bureau of Education
No. 2. Proceedings of the Department of Superintendence of the National Educational Association at its Meeting at Washington, 1886	
Report of the Commissioner of Education for the year 1884-85	
Fourth Annual Report of the Bureau of Ethnology, 1882-83. Plates, fol.	The Smithsonian Institution
Mineral Resources of the United States for 1885. Four extracts from the—, relating to Glass Materials, Manganese, the Manufacture of Coke, and Natural Gas. By J. D. Weeks. 8vo.	J. D. Weeks, Esq., Pittsburgh
Quarterly Report of the Chief of the Bureau of Statistics relative to the Imports, Exports, Immigration and Navigation of the United States for the three months ending 31st December, 1886. [No. 2, 1886-87]	The Bureau of Statistics, Treasury Department
Report on the Internal Commerce of the United States, submitted 20th December, 1886. Part 2 of Commerce and Navigation. The Commercial, Industrial, Transportation, and other interests of the Southern States. Map and diagrams	

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Summary Statement of Imports and Exports. Nos. 7—9. 1886-87	
A Petition to Congress to Repeal the Duties on Coal. 2 pp., fol. [*cir.* 1837]	W. C. Ford, Esq.
RHODE ISLAND. Monthly Reports of Deaths in the City of Providence, March, April, 1887	Dr. E. M. Snow, City Registrar
Bankers' Magazine. April—May, 1887. New York	The Editor
Bradstreet's Journal. (Current weekly numbers.) 1887	,,
Commercial and Financial Chronicle and Hunt's Merchant's Magazine. (Current weekly numbers.) 1887	”
American Academy of Arts and Sciences—	
Memoirs. Centennial Volume, Vol. xi, Part 4, No. 5. 4to. 1886	The Academy
Proceedings. New Series, Vol. xiv, Part 1. 8vo. 1887	
American Geographical Society. Bulletin. Nos. 1—3, 1886	The Society
American Philosophical Society. Proceedings. Vol. xxiii, No. 124, 1886. (Contains "Is there Reciprocity in Trade and the Consumption of Manufactured Commodities?" By *T. H. Dudley*.) Plates	”
Columbia College. Political Science Quarterly. Vol. ii, No. 1, 1887. Harrington and his influence upon American Political Institutions and Political Thought, by *Professor T. W. Dwight*. Limits of Competition, by *Professor J. B. Clark*. Persistence of Competition, by *F. H. Giddings*. The Greenback in War, by *F. P. Powers*. Our Legal Chaos, by the *Hon. J. F. Dillon*. State Statute and Common Law, by *F. J. Stimson and Professor M. Smith*. Louis Riel's Rebellions, by *T. D. Rambaut*	The College
Franklin Institute. Journal. April and May, 1887	The Institute
Smithsonian Institution. Annual Report of the Board of Regents, showing the Operations, Expenditures, and Condition of the Institution for the year 1884. Part 2. Illustrations	The Institution
Uruguay.—Anuario Estadístico de la República Oriental del Uruguay. Año 1885. Diagrams, la. 8vo.	John Oldham, Esq., Montevideo
Venezuela—Gaceta Oficial. Nos. 3982—4031, 1 Marzo —2 Mayo, 1887. Fol.	The Statistical Bureau, Caracas.
International—	
Congrès International d'Anthropologie Criminelle. Actes du premier—, Biologie et Sociologie. (Rome, Novembre, 1885), xv + 549 pp. Plate, diagram, and maps, 8vo. Turin, 1886-87	The Director-General of the Statistics of Italy
Institut International de Statistique. Bulletin. Tome i, 3^e et 4^e Livraisons (1 vol.), année 1886. (Contents.)	

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Navigation Maritime, III. A. Jaugeage des Navires Renseignements complémentaires. B. Les Marines Marchandes 1880-86. Ouvrage redigé, par *A. N. Kiær.* xxix + 36 pp., 4to. Christiania, 1887	The Central Statistical Bureau of Norway
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Prices and Wages in India. Part 1, Average annual district prices of Food-Grains and Salt (1861-86). Part 2, Fortnightly district prices of Food-Grains and Salt for 1886. Part 3, Wages of Skilled and Unskilled Labour (1873-86). Fifth issue. 8vo. Prices and Wages in India. Supplementary Tables:—Fortnightly district prices of Maize and Arhar, 1873-85. 8vo.	The Department of Finance and Commerce, Calcutta
Report on the Records of the India Office, by F. C. Danvers. Vol. i, part 1. Records relating to Agencies, Factories, and Settlements not now under the administration of the Government of India. Map, 8vo. 1887	F. C. Danvers, Esq., India Office
Trade and Navigation. Monthly Accounts. Nos. 10—12, 1886-87 Trade by Land with Foreign Countries. Accounts. Nos. 8 and 9, 1886-87	The Department of Finance and Commerce
Bengal—	
General Report on Public Instruction in Bengal for 1885-86 Report on the Administration of Bengal, 1885-86. Fol., maps	The Lieutenant-Governor of Bengal
Asiatic Society of Bengal—	
Journal. Vol. liii, part 2, No. 4, 1884, vol. lv, part 2, No. 4, 1886. Plates Proceedings. Dec. 1886, Jan. 1887	The Society

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Report of the Department of Indian affairs for 1886	
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Table of the Trade and Navigation for the year 1885-86	
MANITOBA. Eighth Annual Report of the Winnipeg Board of Trade, together with a Statistical Report of the City's Trade for 1886	The Board of Trade
MONTREAL. Mortalité de la Cité de—. Mois de Janvier et Fevrier, 1887. 2 parts, 8vo	The Board of Health, Montreal
Insurance and Finance Chronicle. Vol. vii, Nos. 3—5, portraits, 1887	The Editor
Mauritius. The Mauritius Almanach and Colonial Register for 1887. Nineteenth publication. 8vo.	The Acting Colonial Secretary
New South Wales. Report of the Board of Technical Education of New South Wales for 1885, and Calendar of Sydney Technical College for 1887. 8vo.	The Board of Technical Education
New Zealand—	
Handbook of New Zealand, with maps and plates. [Fourth edition, revised.] Maps and diagrams, 8vo. 1886	The Agent-General for New Zealand
Official Handbook of New Zealand. Edited by the Agent-General. Parts I, II, and III (in 1 vol.). Maps, 8vo., 1883-84	
New Zealand Industrial Exhibition, 1885, Wellington. The Official Record. Plan, 8vo., 1886	Sir J. Hector, K.C.M.G., M.D.
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Vaile's system of Railway Fares and Charges. Report of Select Committee on, together with Minutes of Proceedings, Minutes of Evidence, and Appendix, fol. 1886. Containing also a Paper on the Railways of the Colony, by Samuel Vaile. 1883, &c.	S. Vaile, Esq., New Zealand
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The Gold Fields of Victoria. Reports of the Mining Registrars for the quarter ended 31st December, 1886. Plans, &c., folio	The Department of Mines
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Mineral Statistics of the United Kingdom . . . for 1882 and 1885. [C–3869.] 1884. [C–4771.] 1886........	W. Leigh Bernard, Esq.
Mines. Reports of the Inspectors of Mines for 1881 and 1882. Plans and diagrams. [C–3241.] 1882. [C–3621.] 1883..........	
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LIVERPOOL. Free Public Library, Museum, and Walker Art Gallery. Thirty-fourth Annual Report of the Committee. 8vo. 1887	The Librarian
The Statutes at Large from Magna Charta to the Sixteenth Year of the Reign of King George the Third, inclusive. To which is prefixed a Table of the Titles of all the Publick and Private Statutes during that Time. With a copious Index. Vols. i—xii. Calf, 4to. 1769-76	Gilbert Purvis, Esq.
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BRACHELLI (Dr. H. F.). Statistische Skizzen der europäischen und amerikanischen Staaten, nebst den auswärtigen Besitzungen der ersteren. Erste Abteilung. Elfte verbesserte Auflage. 60 pp., 8vo. Leipzig, 1887	"
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Frewen (Moreton). Appreciation of Gold and Depreciation of Silver. An Address by—. 13 pp., 8vo. Bristol, 1887	The Bi-Metallic League
Gouge (William M.). A Short History of Paper-Money and Banking in the United States, including an Account of Provincial and Continental Paper-Money; to which is prefixed an inquiry into the principles of the system . . . Second edition. 64 pp., 8vo. New York, 1835	W. C. Ford, Esq.
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McDuffie (Mr.). Two Speeches of—, on his Retrenchment Resolutions and on the Tariff, delivered in the Senate of the United States. Two parts, 8vo. Washington, 1843-44	W. C. Ford, Esq.

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Nierop (A. H. Van) and Baak (E.). De Nederlandsche Naamlooze Vennootschappen. Jaargang 1885, 1886. 2 vols., 8vo. Zwolle	The Authors
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Raguet (Condy). The Principles of Free Trade illustrated in a series of Short and Familiar Essays, published in the Banner of the Constitution. Second edition. xix + 439 pp., 8vo. Philadelphia, 1840	W. C. Ford, Esq.
Soetbeer (Ad.). Materials for the Illustration and Criticism of the Economic Relations of the Precious Metals and of the currency question . . . Second enlarged edition. [Not for Publication. Translated and printed for the use of the Gold and Silver Commission only.] 115 pp., fol. Berlin, 1886	G. H. Murray, Esq.
Walker (Francis A.). History of the Second Army Corps in the Army of the Potomac. With portraits and maps. xiv + 737 pp., 8vo. New York, 1886	The Author
Woolston and Beeton (Messrs.). Statistical Chart of British Railways, 1886. Diagrams: 1. Showing percentage of gross receipts, net revenue, and ordinary dividend to paid up capital, also the amount of capital in millions. 2. Showing proportion of ordinary to fixed capital, and proportion of net revenue appropriated to each. 3. Showing cost of railway per mile and amount of ordinary capital per mile in thousands. 4. Showing proportion of passenger to goods traffic receipts	Messrs. Woolston and Beeton
Colonial Office List for 1887: comprising Historical and Statistical Information respecting the Colonial Dependencies of Great Britain . . . the Customs Tariff of each Colony, and other information, by John Anderson and Sidney Webb. 26th publication. Maps, 8vo.	Messrs. Harrison and Sons
Foreign Office List for 1887 : forming a Complete British Diplomatic and Consular Handbook . . . by Sir Edward Hertslet, C.B. 60th publication. Maps, 8vo.	
War Office List and Directory for the Administrative Departments of the British Army, January, 1887, by Denham Robinson. 21st publication. 8vo.	

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Camera di Commercio Italiana in Londra. Giornale della—. Aprile, 1887	The Chamber of Commerce
Chamber of Shipping of the United Kingdom. Report of Proceedings at the Tenth Annual Meeting, February, 1887. 8vo.	C. M. Kennedy, Esq., C.B.
Colonial and Indian Exhibition, London, 1886. Reports on the Colonial Sections of the Exhibition, issued under the supervision of the Council of the Society of Arts. iv + 505 pp., 8vo. 1887	The Society of Arts
East India Association. Journal. Vol. xix. Nos. 3 and 4, 1887	The Association
Institute of Bankers. Journal. April—June, 1887	The Institute
Institution of Civil Engineers. Minutes of Proceedings. Vol. lxxxviii. Plates. 1887...	The Institution
Institution of Mechanical Engineers. Proceedings. No. 1, 1887. Plates	,,
London Chamber of Commerce. Journal. Nos. 62—64. 1887	The Chamber of Commerce
National Fish Culture Association. Journal, including a Summary of Current Information on Fish, Fish Culture, and Fisheries. Vol. i, No. 2, April, 1887. 8vo.	The Association
North of England Steamship Owners' Association. Report of the Committee of Management for 1886. 8vo........	C. M. Kennedy, Esq., C.B.
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Institute of Actuaries. Journal. Vol. xxvi, part 4, April, 1887. Diagram	The Institute
Literary and Philosophical Society of Liverpool. Proceedings during the Sessions 1884-85 and 1885-86. Vols. xxxix and xl. Maps and plates. 8vo.	The Society
Royal Agricultural Society of England. Journal. Second series, vol. xxiii, part 1. Illustrations. 1887	,,
Royal Geographical Society—	
Proceedings. April, May, 1887 .... Supplementary Papers. Vol. i, and part 1 of vol. ii. Maps and plates, 8vo. 1886-87	,,
Royal Institution of Great Britain. Proceedings. Vol. xi, part 3. Plates, 8vo. 1887	The Institution
Royal Medical and Chirurgical Society—	
President's Address, March, 1887.................................... Proceedings. No. 15. 1887.. Catalogue of the Library. Supplement 5, Additions to the Library, 1886	The Society

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Surveyors' Institution. Transactions. Vol. xix, Nos. 9—12. 1887		,,
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Athenæum, The	Current numbers	The Editor
Bankers' Magazine (London), The	,,	,,
Building Societies and Land Companies' Gazette, The	,,	,,
City Quarterly Magazine. Nos. 8 and 9, 1886-87		,,
Commercial World, The	Current numbers	,,
Economist, The	,,	,,
Finance Chronicle, The	,,	,,
Food Journal, The. Vol. iv, No. 37. 1873		T. E. Gibb, Esq.
Indiarubber and Guttapercha Journal	Current numbers	The Editor
Industries. Vol. i, Nos. 19 and 21		,,
Insurance Gazette, The	Current numbers	,,
,, Post, The	,,	,,
,, Record, The	,,	,,
Investors' Monthly Manual, The	,,	,,
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Machinery Market, The	,,	,,
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Vol. L.] [Part III.

JOURNAL
OF THE ROYAL STATISTICAL SOCIETY,

SEPTEMBER, 1887.

Report *of the* Council *for the* Financial Year *ended* 31*st December*, 1886, *and for the* Sessional Year *ending* 28*th June*, 1887, *presented at the* Fifty-Third Annual Meeting *of the* Royal Statistical Society, *held at the Society's Rooms*, 9, *Adelphi Terrace*, *Strand*, *London*, *on the* 28*th of June*, 1887.

Dr. T. Graham Balfour, F.R.S., a Vice-President, *in the Chair.*

The Circular convening the Meeting having been read, and the Minutes of the last Ordinary Meeting read and confirmed, the following Report was taken as read:—

Report of the Council.

In submitting their Fifty-third Annual Report, the Council have much pleasure in stating that a Royal Charter of Incorporation, dated 31st January, 1887, has been granted to the Society, under the style of The Royal Statistical Society. They desire to call the attention of the Fellows to the provision, already announced in the *Journal*, March, 1887, that notwithstanding the change in the name of the Society by the addition of the word "Royal," they are still only entitled under Rule 6 to use the letters F.S.S. as signifying membership of the Society.

The roll of Fellows compares as follows with the average of the previous ten years:—

Particulars.	1886.	Average for the Previous Ten Years.
Number of Fellows on 31st December	943	792
Life Members included in the above	156	126
Number lost by death, withdrawal, or default	70	49
New Fellows elected	85	81

Since the 1st of January last, 22 new Fellows have been elected.

The financial condition of the Society continues to be satisfactory. The following table gives, for purposes of comparison, the different sources of ordinary income for the year 1886, together with the same particulars for the previous five years:—

Receipts per	1886.	1885.	1884.	1883.	1882.	1881.	Average for the Five Years previous to 1886.
	£	£	£	£	£	£	£
Dividends	73	73	88	102	94	88	89
Annual Subscriptions....	1,583	1,462	1,447	1,361	1,291	1,306	1,373
Compositions	231	63	294	126	189	84	151
Journal sales	180	188	207	150	227	145	183
Advertisements in Journal	19	26	19	35	37	26	29
Miscellaneous refunds	—	—	84	4	—	—	—
	2,086	1,812	2,139	1,778	1,838	1,649	1,825
Legacy of Dr. Guy	—	250	—	—	—	—	—
Mr. H. D. Pochin, for the Newmarch Memorial Essay....	—	—	—	—	100	—	—
Sale of 1,000*l.* New 3 per Cent. Stock	—	—	1,007	—	—	—	—
	—	2,062	3,146	—	1,938	—	—

On the other hand, the expenditure has been as follows:—

Expenditure for	1886.	1885.	1884.	1883.	1882.	1881.	Average for the Five Years previous to 1886.
	£	£	£	£	£	£	£
Rent, rates, and taxes...	227	310*	56	80	83	69	120
Fire, lights, and water, repairs, furniture, &c.	72	88	—	77	56	79	60
Salaries, wages, and pension	420	392	394	381	362	322	370
Advertising, postage & delivery of Journals, stationery, & sundry printing	256	241	248	222	191	185	215
Ordinary meeting Expenses	24	23	24	32	26	24	26
Journal	735	625	645	585	553	609	603
Library	32	27	38	49	60	37	42
Miscellaneous	76	50	65	61	54	54	57
	1,842	1,756	1,470	1,487	1,385	1,379	1,493
Catalogue and Index to Library	31	247	392	128	153	—	—
Newmarch Memorial Fund	—	—	—	—	21	—	—
Removing to 9, Adelphi Terrace	—	67	1,203	—	—	—	—
Newmarch Memorial Prize Essay. Received in 1882 from Mr. Pochin..............	—	100	—	—	—	—	—
Howard Medal Prize Essays	—	—	23	20	22	21	—
Jubilee Volume	233	—	—	—	—	—	—
	2,106	2,170	3,088	1,635	1,581	1,400	—

* Of this sum about 114*l.* belongs to the expenditure of 1884.

A comparison of the principal figures at intervals of ten years in the following table, will show the progress of the Society from an early date:—

Comparison of the Condition of the Society at Intervals of Ten Years, on 31st December.

Year.	Number of Fellows.	Ordinary Income.	Expenditure.	Amount Invested.	Liabilities.	Assets over Liabilities.	Year.
		£	£	£	£	£	
1836	390	989	878	867	120	934	1836
'46	411	748	694	867	305	913	'46
'56	391	840	816	867	156	957	'56
'66	364	754	857	1,042	104	1,877	'66
'76	611	1,438	1,340	1,207	187	3,277	'76
'86	943	2,086	2,106	2,500	741	5,163	'86

The following table gives the particulars for each year of the last decade on 31st December:—

Year.	Number of Fellows.	Ordinary Income.	Expenditure.	Amount Invested.	Liabilities.	Assets over Liabilities.	Year.
		£	£	£	£	£	
1877	683	1,597	1,286	1,398	201	3,763	1877
'78 ...	746	1,732	1,345	1,902	168	4,147	'78
'79 ...	783	1,698	1,427	2,283	238	4,433	'79
'80	808	1,902	1,517†	2,572	214	4,614	'80
'81	807	1,649	1,400	2,869	192	4,935	'81
'82	786	1,838	1,581‡	3,071	203	5,240	'82
'83	860	1,778	1,635‡	3,500	347	5,246	'83
'84	909	2,139	3,087*‡	2,500	968	4,188	'84
'85 ...	928	1,812	2,170*‡§	2,500	1,169	3,791	'85
'86	943	2,086	2,106‡‖	2,500	741	5,163	'86

* Affected by expenses incident to moving into new premises.

† Affected by expenses attending the alteration, &c., of the meeting room at King's College.

‡ Affected by expenses attending the preparation of the new Catalogue and Index to the library.

§ Includes 100*l*. given by Mr. H. D. Pochin for the Newmarch Memorial Prize Essay.

‖ Includes balance of cost of Jubilee volume.

The averages of the annual sales of the Society's *Journal* are as follows:—

	£
For the ten years 1841-50	56
,, '51-60	83
,, '61-70	97
,, '71-80	155
For the last six years '81-86	183

The Society re-assembled in November, and the papers read and the members elected at each of the monthly meetings were as follows:—

SESSION 1886-87.

First Ordinary Meeting, Tuesday, 16th November, 1886.

RICHARD B. MARTIN, Esq., M.A., a Vice-President, in the Chair.

The following were elected Fellows:—

Henry Walsingham Andras.
William Bourne.
Courtenay Boyle, C.B.
The Right Hon. Lord Bramwell, F.R.S.
Lord Henry Brudenell Bruce, M.P.
Frederick Carpenter.
Samuel Chapman.
H. J. Clark.
Charles Darrell.
Alfred Ford.
Professor William Fream.
Richard S. Henshaw.
Sir Baldwyn Leighton, Bart.
Malcolm Low, M.P.
Thomas B. Moxon.
The Right Hon. Earl of Pembroke.
Henry Peto.
J. Francis Pink.
Andrew Dryburgh Provand, M.P.
Robert Rhens.
Arthur B. Russell.
Captain Charles W. Selwyn, M.P.
Ernest J. F. Seyd.
Michael Hugh Shaw-Stewart, M.P.
S. W. Silver.
Sir George Reresby Sitwell, Bart.
The Right Hon. Lord Vernon.
Alfred Charles Waters.
Robert Armstrong Yerburgh, M.P.

Mr. J. S. Jeans read a Paper "On the Cost and the Conditions "of Working Railway Traffic in different Countries."

Second Ordinary Meeting, Tuesday, 21st December, 1886.

Professor H. S. FOXWELL, M.A., a Vice-President, in the Chair.

The following were elected Fellows:—

David Dale.
J. Eugene Dawson.
Edward Ingham.
Stanley M. Leathes.
Benjamin Pratt.
Arthur Manley Smith.
Ebenezer Thomas Weller.

Mr. L. L. F. R. Price, B.A., read a Paper on "Sliding Scales "and other Methods of Wage-Arrangements in the North of "England."

Third Ordinary Meeting, Tuesday, 18*th January*, 1887.

Sir R. W. Rawson, K.C.M.G., C.B., a Past-President, in the Chair.

The following were elected Fellows:—

Thomas Squire Barrett.
Archibald Weir.

Mr. Robert Lawson, LL.D., Inspector-General of Army Hospitals, read a Paper on "The Mortality among the Troops "Serving in the United Kingdom, from Consumption."

Fourth Ordinary Meeting, Tuesday, 15*th February*, 1887.

Mr. Lionel L. Cohen, M.P., a Vice-President, in the Chair.

The following were elected Fellows:—

Benjamin Kidd.
J. J. Nacian.

Major P. G. Craigie read a Paper on "The Size and Distribution of Agricultural Holdings in England and Abroad."

Fifth Ordinary Meeting, Tuesday, 15*th March*, 1887.

Sir R. W. Rawson, K.C.M.G., C.B., a Past-President, in the Chair.

The following were elected Fellows:—

W. J. Ashley.
John Baker.
Henry Ferryman Bowles.
George Culley.
Frederic Field Gover.
The Rev. Michael Graves.
Archibald Pearson Honeyman.
George D. Meudell.

Mr. T. H. Elliott read a Paper on "The Annual Taxes on "Property and Income."

Sixth Ordinary Meeting, Tuesday, 19*th April*, 1887.

Dr. T. Graham Balfour, F.R.S., a Vice-President, in the Chair.

The following were elected Fellows:—

Emile Garcke.
Yves Guyot, Deputé.
Robert McNaught.
E. F. Owen.
L. L. F. R. Price.

Mr. N. A. Humphreys read a Paper on "Class Mortality "Statistics."

Seventh Ordinary Meeting, Tuesday, 17*th May*, 1887.

Dr. T. GRAHAM BALFOUR, F.R.S., a Vice-President, in the Chair.

The following were elected Fellows:—

Alphonse Allard.	Edward D. Page.

Mr. Charles Booth read a Paper on "The Inhabitants of the "Tower Hamlets (School Board Division), their Condition and "Occupations."

Eighth Ordinary Meeting, Tuesday, 14*th June*, 1887.

SIR RAWSON W. RAWSON, K.C.M.G., C.B., a Past-President, in the Chair.

The following were elected Fellows:—

George M. Dent.	Lewis D. Jones.

Arthur Raffalovich.

Mr. A. E. Bateman read a Paper entitled "The Statistical "Story of the Suez Canal," by Joseph Rabino, Esq.

The Council have to report that the number of Fellows of the Society has slightly decreased, the total being now 939 against 941 at the date of their last Report; but the increasing value and importance that is now accorded to statistical inquiry, justifies the Council in expressing a confident hope that this decrease is but temporary; and they would urge on all Fellows of the Society the importance of using their best efforts to increase the numerical strength of the Society, and so to augment its efficiency in advancing the purposes for which it was instituted.

The sources of the Society's income in 1886 have been of a normal character, and exhibit a satisfactory increase in the amount received from annual subscriptions and compositions. The ordinary expenditure shows a corresponding increase, and extraordinary expenditure has been incurred in closing the accounts of the Jubilee Volume and the Index to the Catalogue of the Library.

The following letter from the Institute of Actuaries, intimating the termination of their present tenancy with the Society, has been received:—

"*Institute of Actuaries, &c.*,
"15*th December*, 1886.

"*The Honorary Secretaries of the Statistical Society.*

"DEAR SIRS,

"We beg leave to inform you that we have been instructed "by the Council of the Institute of Actuaries to intimate, with

" the sincere expression of their regret, that, on the termination
" in June next of the existing agreement for their tenancy of the
" present rooms under the Statistical Society, they do not propose
" asking for its renewal, as separate and suitable house accommo-
" dation has been offered to them in Staple Inn.

" The Council desire, in severing their long connection as joint
" tenants with the Statistical Society, to convey their sense of the
" friendly feelings which have existed between the two bodies, and
" their sincere trust that those feelings will always continue to be
" maintained.

" We are, &c., yours truly,
" For G. S. CRISFORD and SELF,
" *Hon. Secretaries.*
(Signed) " T. E. YOUNG."

The Council cordially reciprocate the regret thus expressed on behalf of the Institute of Actuaries. They have under their careful consideration the difficult question of disposing of the part of the Society's premises about to be vacated by the Institute of Actuaries, without detriment to the interests of the Society.

Permission to hold the Ordinary Meetings of the Society in the Theatre of the School of Mines in Jermyn Street has been continued to the Society through the courtesy of the Education Department, and the Council have conveyed to the Lords of the Committee of Council on Education their thanks for the accommodation thus afforded to the Society.

With reference to a hope expressed in their last Report, the Council have now the satisfaction of reporting that the Trustees of the British Museum have been pleased to present to the Society the printed General Catalogue of the Museum Library from 1881.

The Executive Committee of the Council, which has hitherto consisted of the President, the ex-President, the Treasurer, and the three Honorary Secretaries, has been increased by the addition of the four Vice-Presidents chosen annually by the President, and the Editor of the *Journal.*

A Committee has been appointed to consider a memorandum of suggestions for the taking of an Imperial Census of the United Kingdom and Dependencies of the British Crown in 1891, and to examine how far it is desirable and practicable to effect that object in respect of—

(*a*). Identity of date for taking it;
(*b*). Uniformity of methods of obtaining and abstracting similar information;
(*c*). Unity of digesting and combining the results and of

publishing them as promptly as may be practicable, in one or more volumes, by means of a central commission or committee;

And further: To consider the expediency of moving Her Majesty's Government to take timely steps for giving practical effect to the suggestions for making, compiling, and publishing an Imperial Census.

On the invitation of the Royal Historical Society, Sir Rawson W. Rawson, K.C.M.G., C.B., and Mr. Robert Giffen, LL.D., were appointed delegates to serve on the committee appointed to organise the celebration, in October last, of the eight hundredth Anniversary of the Completion of the Domesday Survey.

A letter having been received from the Organising Secretary of the Imperial Institute, conveying the hope of H.R.H. the Prince of Wales that the Council of this Society would feel disposed to invite its Fellows collectively to take part in the foundation of the Imperial Institute, the matter has been brought under the notice of the Fellows by means of the *Journal*, and it was also mentioned at the Ordinary Meeting on 15th February.

The first general meeting of the International Statistical Institute, founded at the Jubilee Meeting of the Society in June, 1885, was held at Rome from 12th—16th April, under the presidency of Sir Rawson W. Rawson. The Society was represented by Mr. Bateman, Major Craigie, Professor Leone Levi, Mr. John B. Martin (Treasurer of the Institute), Dr. Mouat, and Mr. Palgrave. It was decided to hold the next meeting at Paris in September, 1889, and international committees were appointed to consider in the interval statistical questions of international interest; and the Council think that the success of the Institute cannot but be gratifying to the members of the Statistical Society, under whose auspices it was founded.

The meeting of the British Association in 1886 was held at Birmingham, where the Society was as usual well represented in Section F (Economic Science and Statistics), and papers were read by the following Fellows of the Society: Mr. John B. Martin, M.A. (President of the Section); Mr. Hyde Clarke; Mr. F. Y. Edgeworth, M.A.; Mr. F. P. Fellows; Professor W. Fream, B.Sc. Lond.; Mr. J. S. Jeans; Mr. B. King, B.A.; Mr. Baldwin Lathom; Professor J. S. Nicholson, M.A.; Professor H. Sidgwick, M.A.; Mr. M. Stevens; and Mr. W. Westgarth.

The Council wish to make known to the Fellows generally that they are invited to take part in the Sixth International Congress of Hygiene and Demography, which is to be held in Vienna from 26th of September to 1st October next. Fellows who propose to attend are requested to communicate their intention to the Assistant Secretary (who will, on application, furnish further information on the subject), in order that their names may be duly reported and personal invitations sent to them from Vienna.

A similar invitation has been addressed by M. Yves Guyot, President of the Political Economy Section of the Congress of the French Association for the Advancement of Science, to be held at Toulouse on the 25th to 29th September next. Fellows proposing to attend the Congress are invited to address themselves to M. Yves Guyot, or to M. A. Raffalovich, the Assistant Secretary, 4, Rue Antoine Dubois, Paris.

The Council have caused a dutiful and loyal address of congratulation to Her Most Gracious Majesty the Queen on the occasion of the completion of the fiftieth year of her reign to be drawn up and signed by the President, and it has been forwarded to Her Majesty through the usual channel.

The Society has to lament the deaths of the following members:—

Fellows.

		Date of Election.
	John Bramley-Moore, Esq., D.L.	1874
	Isaac B. Cooke, Esq.	1879
	William A. Day, Esq.	1876
	Thomas Huskinson, Esq.	1877
	Benjamin Jenkins, Esq.	1883
	Henry Martin, Esq.	1873
	Samuel Morley, Esq.	1873
	The Rt. Hon. Charles N. Newdigate, D.C.L.	1879
p (3) *c d*	Robert H. Patterson, Esq.	1869
	Henry J. Phillips, Esq.	1859
	Samuel Raleigh, Esq.	1864
	William A. Thomas, Esq.	1879
	Edward Williams, Esq.	1879
d	H. W. I. Wood, Esq.	1868

Honorary Members.

M. Frederik Theodor Berg (Sweden)	1860
The Hon. Charles F. Conant (United States)	1880

The Charter provides that the first bye-laws shall be made at the first general meeting to be held under its provisions; and the

---

c Indicates those who on one or more occasions had served on the Council.

d Indicates those who had been Donors to the Library.

p Indicates those who had contributed Papers, with the numbers respectively contributed.

Council have, with the assistance of the Executive Committee, carefully revised the present rules. A printed copy of the proposed bye-laws has been duly sent to each Fellow, and it is an important duty imposed on the present meeting to discuss the changes submitted by the Council and to decide upon them.

The following list of Fellows proposed as President, Council, and Officers of the Society for the Session 1887-88 is submitted for the consideration of the meeting:—

Council and Officers for 1887-88.

PRESIDENT.

THE RIGHT HON. GEORGE J. GOSCHEN, M.P.

COUNCIL

Arthur H. Bailey, F.I.A.
T. Graham Balfour, M.D., F.R.S.
Alfred Edmund Bateman.
*Charles Booth.
Stephen Bourne.
J. Oldfield Chadwick, F.R.G.S.
Hammond Chubb, B.A.
Hyde Clarke.
Major Patrick George Craigie.
Francis Ysidro Edgeworth, M.A.
*Thomas Henry Elliott.
Professor H. S. Foxwell, M.A.
Frederick Brooksbank Garnett, C.B.
*John Glover, J.P.
Rowland Hamilton.
Frederick Hendriks, F.I.A.
Noel A. Humphreys.
James Stephen Jeans.
Charles Malcolm Kennedy, C.B.
Robert Lawson, LL.D.
Professor Leone Levi, LL.D.
George Blundel Longstaff, M.A., M.B.
John Biddulph Martin, M.A.
Richard Biddulph Martin, M.A.
Francis G. P. Neison, F.I.A.
William Ogle, M.A., M.D., F.R.C.P.
*Henry Davis Pochin, J.P.
*Francis Sharp Powell, M.P.
R. Price-Williams, M.Inst. C.E.
*Sir Reginald Earle Welby, K.C.B.

Those marked * are new Members of Council.

TREASURER.

Richard Biddulph Martin, M.A.

SECRETARIES.

John Biddulph Martin, M.A.
Alfred Edmund Bateman.
Major P. G. Craigie.

FOREIGN SECRETARY.

John Biddulph Martin, M.A.

The abstract of receipts and payments, and the balance sheet of assets and liabilities on 31st December, 1886, are subjoined, together with the report of the Auditors on the accounts for the year 1886:—

(I.)—ABSTRACT *of* RECEIPTS *and* PAYMENTS *for the* YEAR *ending* 31*st* DECEMBER, 1886.

RECEIPTS.

		£	*s.*	*d.*
Balance in Bank, 31st December, 1885 ...	£44 11 –			
Balance of Petty Cash.	25 12 5			
,, Postage Account	3 19 2			
		74	2	7
Dividends on New 3 per Cent. Stock		72	10	–
Annual Subscriptions received:—				
45 Arrears	£94 10 –			
673 for the year 1886	1,413 6 –			
36 in Advance	75 12 –			
754		1,583	8	–
11 Compositions		231	–	–
Journal Sales		179	16	9
Advertisements in Journal		18	18	–
Total		£2,159	15	4

PAYMENTS.

		£	*s.*	*d.*
Rent	£314 3 4			
Less sublet	200 – –			
		114	3	4
Rates and Taxes		112	13	2
Fire, Lights, and Water		45	18	9
Repairs, Furniture, &c.		26	2	–
Salaries, Wages, and Pension		419	15	–
Journal, Printing	£667 6 –			
,, Annual Index	5 5 –			
,, Shorthand Reporters	18 18 –			
,, Literary Services	43 11 6			
		735	–	6
Ordinary Meeting Expenses		24	9	4
Advertising		50	1	7
Postage and delivery of Journals...		102	19	10
Stationery and Sundry Printing ...		102	8	–
Library		32	6	3
Incidental Expenses		76	8	5
		1,842	6	2
Mrs. Halley on behalf of her Son (deceased)	£25 – –			
Miss Halley (for Index)	5 15 8			
		30	15	8
Messrs. Harrison and Sons (for Jubilee Volume)		233	1	6
		£2,106	3	4
Balance at Messrs. Drummond's	£37 15 –			
Balance of Petty Cash	13 11 3			
Balance of Postage Account	2 5 9			
		53	12	–
Total		£2,159	15	4

(Signed) "J. O. CHADWICK, F.C.A.,
"T. H. ELLIOTT,
"GÉRARD VAN DE LINDE, F.C.A., } *Auditors.*"

"*7th February*, 1887.

(II.)—BALANCE SHEET *of* ASSETS *and* LIABILITIES, *on* 31*st* DECEMBER, 1886.

LIABILITIES.

	£	*s.*	*d.*	£	*s.*	*d.*
Harrison and Sons—						
Journal Account	130	–	–			
Miscellaneous Printing Account	13	4	–			
Index to Catalogue ...	279	13	6			
C. and E. Layton, Stationery	14	3	2			
Street Bros., Advertisements	20	18	–			
For Annual Index to Journal	5	5	–			
Miscellaneous (as per List)	72	8	9			
				535	12	5
Special Outlay for Charter (say) ...				130	–	–
36 Annual Subscriptions received in advance				75	12	–
				£741	4	5
Balance in favour of the Society*..				5,163	1	6
				£5,904	5	11

ASSETS.

		£	*s.*	*d.*
Cash Balances		53	12	–
2,500*l.* New 3 per Cent. Stock costing		2,371	13	11
Property: (Estimated Value of)—				
Books in Library (20,000 volumes) ...	£1,500			
Journals in Stock	1,000			
Furniture and Fixtures	500			
		3,000	–	–
Lease of Premises (cost)	500			
Less amount written off for time expired	105			
		395	–	–
Arrears of Subscriptions recoverable (say)		84	–	–
		£5,904	5	11

(Signed) " J. O. CHADWICK, F.C.A.,
" T. H. ELLIOTT,
" GÉRARD VAN DE LINDE, F.C.A., *Auditors.*"

" 7*th February*, 1887.

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* This balance is exclusive of the present value of the absolute Reversionary Interest bequeathed to the Society by the late Dr. Guy.

(III.)—BUILDING FUND (ESTABLISHED 10*th July*, 1873), BALANCE SHEET, *on* 31*st* DECEMBER, 1886.

LIABILITIES.

	£	*s.*	*d.*
Amount of Fund Invested from last Account	199	3	1
Dividends Received during 1886 ...	6	11	10
	£205	14	11

ASSETS.

					£	*s.*	*d.*
Invested as per last Account in Metropolitan Consolidated 3½ per Cent. Stock, in the name of the Treasurer, R. B. Martin, Esq.—							
	£192	14	–	cost	199	3	1
Purchased during the year............	5	16	8	"	6	11	10
	£198	10	8		£205	14	11

(Signed) " J. O. CHADWICK, F.C.A.,
" T. H. ELLIOTT,
" GÉRARD VAN DE LINDE, F.C.A., *Auditors.*"

" 7*th February*, 1887.

"REPORT OF THE AUDITORS FOR 1886.

"STATISTICAL SOCIETY.

"*The Auditors appointed to examine the Treasurer's Accounts of the Society for the Year* 1886,

"REPORT:—

"*That they have compared the Entries in the Books with the several Vouchers for the same, from the* 1*st January to the* 31*st December,* 1886, *and find them correct, showing the Receipts (including a Balance of* 74*l.* 2*s.* 7*d. from* 1885) *to have been* 2,159*l.* 15*s.* 4*d., and the Payments* 2,106*l.* 3*s.* 4*d., leaving a Balance in favour of the Society of* 53*l.* 12*s.* –*d. at the* 31*st December,* 1886.

"*They have also had laid before them an Estimate of the Assets and Liabilities of the Society at the same date, the former amounting to* 5,904*l.* 5*s.* 11*d., and the latter to* 741*l.* 4*s.* 5*d., leaving a Balance in favour of the Society of* 5,163*l.* 1*s.* 6*d.*

"*The amount standing to the credit of the Building Fund at the end of the year* 1886, *was* 205*l.* 14*s.* 11*d., invested in* 198*l.* 10*s.* 8*d. Metropolitan Three and a Half per Cent. Stock, in the name of the Treasurer, R. B. Martin, Esq.*

They have verified the Investments of the Society's General Funds and Building Fund, and also the Banker's Balance, all which were found correct.

"*They further find that at the end of the year* 1885 *the number of Fellows on the list was* 928, *which number was diminished in the course of the year to the extent of* 70, *by Deaths, Resignations, and Defaulters, and that* 85 *new Members were elected, leaving on the list on the* 31*st December,* 1886, 943 *Fellows of the Society.*

(Signed) "J. O. CHADWICK, F.C.A.,
"T. H. ELLIOTT,
"GÉRARD VAN DE LINDE, F.C.A., } *Auditors.*"

"*7th February,* 1887.

Proceedings *of the* Fifty-Third Anniversary Meeting.

The Chairman (Dr. T. Graham Balfour) said that since the report was drawn up they had lost by death a valued member of the Council, Mr. Lionel L. Cohen, M.P. He was sure that Mr. Cohen's death would be greatly regretted both by the Council and the Fellows. He begged to move that the report of the Council, the abstract of receipts and payments, the balance sheet of assets and liabilities, and the report of the auditors for 1886 be adopted, entered on the minutes, and printed in the *Journal*.

Sir R. W. Rawson seconded the motion, which was agreed to.

The Chairman said that the next business was of a rather unusual character. They were required at that meeting by the terms of the Royal Charter to pass rules and bye-laws for the Society. These had been carefully considered by the Executive Committee, whose report had been adopted by the Council. On considering the laws and adapting them to the requirements of the Charter, they had had the benefit of the advice of Mr. F. H. Janson, who had pointed out to them a number of details that required to be attended to in accordance with the terms of the Charter. The bye-laws had been circulated among the Fellows, and he presumed that they would hardly require the Secretary to read them. The better course would perhaps be for him to put each section to the vote, so that any Fellow who had any objection to make or suggestions to offer would have an opportunity of doing so.

The various sections of the bye-laws were then put *seriatim* and unanimously adopted.

The bye-laws were also agreed to as a whole.

Mr. F. G. P. Neison and Mr. T. H. Elliott were appointed scrutineers for the ballot.

Mr. John B. Martin (Hon. Sec.) said he had the permission of the Chairman to submit to the meeting a letter which he had that morning received from Mr. Thomas A. Welton, suggesting that some alteration should be made in the bye-law relating to the mode of electing the Council. Mr. Welton's letter, which did not contain any definite proposal, was accordingly read.

The Chairman said that the paper containing the balloting list called special attention to the fact that Fellows voting could erase any name and substitute any other.

Sir R. W. Rawson said that in the thirteenth article provision was made for a gradual change of the entire Council. At least three of the senior members, those who had sat longest on the Council, were obliged to go out every year. That was in accordance with a wish that had been expressed on a previous occasion, that the Council should not always be composed of the same persons. The experience of the Geographical Society was in harmony with that view. A certain number of members went out every year, and remained out for one year, at the expiration of which they were eligible for re-election. Experience had shown that those who had been longest on the Council generally took the greatest interest in it, and were the most valuable members, and some of them would be a great loss to the Council if they were obliged to go out entirely. It was thought that the case was met by the provision in the thirteenth rule.

The CHAIRMAN announced that the scrutineers had reported that the President, Council, and Officers proposed in the list had been unanimously elected; and moved a vote of thanks to the scrutineers for their services, which was agreed to.

Mr. CHARLES BOOTH proposed a cordial vote of thanks to the President, Council, and Officers of the Society for their services during the past year, and to the Chairman for presiding.

Mr. T. H. ELLIOTT, in seconding the motion, said that the Council had, during the past year, amply fulfilled its obligations to the Society. They had provided an excellent series of papers, and had taken every step they could to establish the Society in a good position not only in this country, but in those foreign countries where statistical work was valued.

The motion was agreed to unanimously.

The CHAIRMAN, in acknowledging the vote of thanks, said that the Council and Officers had endeavoured to the utmost of their ability to promote the interests of the Society, and it was pleasing to find that their exertions had met with the approval of the Fellows.

Sir R. W. RAWSON desired to remind the Fellows that a great deal depended upon their cordial assistance, especially in regard to the provision of papers to be read at the meetings.

The CHAIRMAN said he was sorry that he had been obliged on this occasion to take the chair. It would have been much more agreeable to him, as it no doubt would have been to the Fellows, if the President had occupied that position. He could only attribute Mr. Goschen's absence to his important duties in the House, as he had fully intended to be present on the occasion, and nothing but the calls of public duty would have kept him away. The Chairman looked forward to an address from the President when the Society again met, and was sure it would be one to which the Fellows would listen with great pleasure.

The following are the Rules and Bye-laws referred to in the Report of the Council, and adopted and agreed to at the Fifty-third Annual General Meeting:—

ROYAL STATISTICAL SOCIETY.

Index to Rules and Bye-Laws.

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RULES AND BYE-LAWS OF THE ROYAL STATISTICAL SOCIETY.

Objects of the Society.

1. The objects of the Royal Statistical Society are to collect, arrange, digest and publish facts, illustrating the condition and prospects of society in its material, social, and moral relations; these facts being for the most part arranged in tabular forms and in accordance with the principles of the numerical method.

The Society collects new materials, condenses, arranges, and publishes those already existing, whether unpublished or published in diffuse and expensive forms, in the English or in any foreign language, and promotes the discussion of legislative and other public measures from the statistical point of view. These discussions form portions of the published Transactions of the Society.

Constitution of the Society.

2. The Society consists of Fellows and Honorary Fellows, elected in the manner hereinafter described.

Number of Fellows and Honorary Fellows.

3. The number of Fellows is unlimited. Foreigners or British subjects of distinction residing out of the United Kingdom may be admitted as Honorary Fellows, of whom the number shall not be more than seventy at any one time.

Proposal of Fellows.

4. Every Candidate for admission as a Fellow of the Society shall be proposed by two or more Fellows, who shall certify from their personal knowledge of him or of his works, that he is a fit person to be admitted a Fellow of the Society. Every such certificate having been read and approved of at a Meeting of the Council, shall be suspended in the office of the Society until the following Ordinary Meeting, at which the vote shall be taken.

Election of Fellows.

5. In the election of Fellows, the votes shall be taken by ballot. No person shall be admitted unless at least sixteen Fellows vote, and unless he have in his favour three-fourths of the Fellows voting.

Admission of Fellows.

6. Every Fellow elect is required to take the earliest opportunity of presenting himself for admission at an Ordinary Meeting of the Society.

The manner of admission shall be thus:—

Immediately after the reading of the minutes, the Fellow elect, having first paid his subscription for the current year or his composition, shall sign the obligation contained in the Fellowship-book, to the effect following:—

"We, who have underwritten our "names, do hereby undertake, each for "himself, that we will endeavour to "further the good of the Royal Statis- "tical Society for improving Statistical "Knowledge, and the ends for which "the same has been founded; that we "will be present at the Meetings of the "Society as often as conveniently we "can, and that we will keep and fulfil "the Bye-laws and Orders of this "Society: provided that whensoever "any one of us shall make known, by "writing under his hand, to the Secre- "taries for the time being, that he "desires to withdraw from the Society, "he shall be free thenceforward from "this obligation."

Whereon the President, taking him by the hand, shall say,—"By the "authority, and in the name of the "Royal Statistical Society, I do admit "you a Fellow thereof."

Upon their admission Fellows shall have the right of attaching to their names the letters F.S.S., but not in connection with any trading or business advertisement other than the publication of any book or literary notice.

Admission of Honorary Fellows.

7. There shall be Two Meetings of the Society in the year, on such days as shall be hereafter fixed by the Council, at which Honorary Fellows may be elected.

No Honorary Fellow can be recommended for election but by the Council. At any Meeting of the Council any Member thereof may propose a Foreigner or British subject of distinction residing out of the United Kingdom, delivering at the same time a written statement of the qualifications of, offices held by, and published works of, the person proposed; and ten days' notice at least shall be given to every Member of the Council, of the day on which the Council will vote by ballot on the question whether they will recommend to the Society the election of the person proposed. No such recommendation to the Society shall be adopted unless at least three-fourths of the votes are in favour thereof.

Notice of the recommendation shall be given from the chair at the Meeting of the Society next preceding that at which the vote shall be taken thereon. No person shall be elected an Honorary Fellow unless sixteen Fellows vote and three-fourths of the Fellows voting be in his favour.

The Council shall have power to elect as Honorary Fellows, the Presidents for the time being of the Statistical Societies of Dublin, Manchester, and Paris, and the President of any other Statistical Society at home or abroad.

Payments by Fellows.

8. Every Fellow of the Society shall pay a yearly subscription of Two Guineas, or may at any time compound for his future yearly payments by paying at once the sum of Twenty Guineas.*

Defaulters.—Withdrawal of Fellows.

9. All yearly payments are due in advance on the 1st of January, and if any Fellow of the Society have not paid his subscription before the 1st of July, he shall be applied to in writing by the Secretaries, and if the same be not paid before the 1st of January of the second year, a written application shall again be made by the Secretaries, and the Fellow in arrear shall cease to receive the Society's publications, and shall not be entitled to any of the privileges of the Society until such arrears are paid; and if the subscription be not discharged before the 1st of February of the second year, the name of the Fellow thus in arrear shall be exhibited on a card suspended in the office of the Society; and if, at the next Annual General Meeting, the amount still remain unpaid, the defaulter shall, unless otherwise authorised by the Council, be announced to be no longer a Fellow of the Society, the reason for the same being at the same time assigned. No Fellow of the Society can withdraw his name from the Society's books, unless all arrears be paid; and no resignation will be deemed valid unless a written notice thereof be communicated to the Secretaries. No Fellow shall be entitled to vote at any Meeting of the Society until he shall have paid his subscription for the current year.

Expulsion of Fellows.

10. If any Fellow of the Society, or any Honorary Fellow, shall so demean himself that it would be for the dishonour of the Society that he longer continue to be a Fellow or Honorary Fellow thereof, the Council shall take the matter into consideration; and if the majority of the Members of the Council present at some Meeting (of which and of the matter in hand such Fellow or Honorary Fellow, and every Member of the Council, shall have due notice) shall decide by ballot to recommend that such Fellow or Honorary Fellow be expelled from the Society, the President shall at its next Ordinary Meeting announce to the Society the recommendation of the Council, and at the following Meeting the question shall be decided by ballot, and if at least three-fourths of the number voting are in favour of the expulsion, the President shall forthwith cancel the name in the Fellowship-book, and shall say,—

"By the authority and in the name "of the Royal Statistical Society, I do

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* Cheques should be made payable to "The Royal Statistical Society," and crossed "Messrs. "Drummond and Co."

"declare that A. B. (naming him) is no "longer a Fellow (or Honorary Fellow) "thereof."

And such Fellow or Honorary Fellow shall thereupon cease to be of the Society.

Trustees.

11. The property of the Society may be vested in three Trustees, chosen by the Fellows. The Trustees are eligible to any other offices in the Society.

President, Council, and Officers.

12. The Council shall consist of a President and thirty Members, together with the Honorary Vice-Presidents.

From the Council shall be chosen four Vice-Presidents, a Treasurer, the Honorary Secretaries, and a Foreign Secretary, who may be one of the Honorary Secretaries. The former Presidents who are continuing Fellows of the Society shall be Honorary Vice-Presidents. Any five of the Council shall be a quorum.

Election of President and Officers.

13. The President, Members of Council, Treasurer, and Honorary and Foreign Secretaries shall be chosen annually by the Fellows at the Annual General Meeting.

The Vice-Presidents shall be chosen annually from the Council by the President.

The President shall not be eligible for the office more than two years in succession.

Six Fellows, at least, who were not of the Council of the previous year, shall be annually elected; and of the Members retiring three at least shall be those who have served longest continuously on the Council, unless they hold office as Treasurer or Honorary or Foreign Secretary.

Nomination of President, Council, and Officers.

14. The Council shall, previously to the Annual General Meeting, nominate, by ballot, the Fellows whom they recommend to be the next President and Council of the Society. They shall also recommend for election a Treasurer and the Secretaries (in accordance with Rule 12). Notice shall be sent to every Fellow whose residence is known to be within the limits of the metropolitan post, at least a fortnight before the Annual General Meeting, of the names of Fellows recommended by the Council.

Extraordinary Vacancies.

15. On any extraordinary vacancy occurring of the Office of President, or other Officer of the Society, the Honorary Secretaries shall summon the Council with as little delay as possible, and a majority of the Council, thereupon meeting in their usual place, shall, by ballot, and by a majority of those present, choose a new President, or other Officer of the Society, to be so until the next Annual General Meeting.

Committees.

16. The Council shall have power to appoint Committees of Fellows and also an Executive Committee of their own body. The Committees shall report their proceedings to the Council. No report shall be communicated to the Society except by the Council.

Auditors.

17. At the first Ordinary Meeting of each year, the Fellows shall choose two Fellows, not being Members of the Council, as Auditors, who, with one of the Council, chosen by the Council, shall audit the Treasurer's accounts for the past year, and report thereon to the Society, which report shall be presented at the Ordinary Meeting in February. The Auditors shall be empowered to examine into the particulars of all expenditure of the funds of the Society, and may report their opinion upon any part of it.

Meetings Ordinary and General.

18. The Ordinary Meetings of the Society shall be held monthly, or oftener, during the Session, which shall be from the 1st of November to the 1st of July in each year, both inclusive, on such days and at such hours as the Council shall declare. The Annual General Meeting shall be held on such day in the month of June of each year as shall be appointed by the Council for the time being.

Business of Ordinary Meetings.

19. The business of the Ordinary Meetings shall be to elect and admit Fellows, to read and hear reports, letters, and papers on subjects interesting to the Society. Nothing relating to the bye-laws or management of the Society shall be discussed at the Ordinary Meetings, except that the Auditors' Report shall be presented at the Ordinary Meeting in February, and that the Minutes of the Annual General Meeting, and of every Special General Meeting, shall be submitted for confirmation at the next Ordinary Meeting after the day of such Annual or Special General Meeting. Strangers may be introduced to the Ordinary Meetings, by any Fellow, with the leave of the President, Vice-President, or other Fellow presiding at the Meeting.

Business of Annual General Meeting.

20. The business of the Annual General Meeting shall be to elect the Officers of the Society, and to discuss questions on its bye-laws and management. No Fellow or Honorary Fellow shall be proposed at the Annual General Meeting. No Fellow shall propose any alteration of the rules or bye-laws of the Society at the Annual General Meeting, unless after three weeks' notice thereof given in writing to the Council, but amendments to any motion may be brought forward without notice, so that they relate to the same subject as the motion. The Council shall give fourteen days' notice to every Fellow of all questions of which such notice shall have been given to them.

Special General Meetings.

21. The Council may, at any time, call a Special General Meeting of the Society when it appears to them necessary. Any twenty Fellows may require a Special General Meeting to be called, by notice in writing signed by them, delivered to one of the Secretaries, specifying the questions to be moved. The Council shall, within one week of such notice, appoint a day for such Special General Meeting, and shall give at least one week's notice of every Special General Meeting, and of the questions to be moved, to every Fellow within the limits of the metropolitan post, whose residence is known. No business shall be brought forward at any Special General Meeting other than that specified in the notice convening the same.

Duties of the President.

22. The President shall preside at all Meetings of the Society, Council, and Committees, which he shall attend, and in case of an equality of votes, shall have a second or casting vote. He shall sign all diplomas of admission of Honorary Fellows. He shall admit and expel Fellows and Honorary Fellows, according to the bye-laws of the Society.

Duties of the Treasurer.

23. The Treasurer shall receive all moneys due to, and pay all moneys owing by, the Society, and shall keep an account of his receipts and payments. No sum exceeding Ten Pounds shall be paid but by order of the Council, excepting always any lawful demand for rates or taxes. The Treasurer shall invest the moneys of the Society in such manner as the Council shall from time to time direct.

Duties of the Honorary Secretaries.

24. The Honorary Secretaries shall, under the control of the Council, conduct the correspondence of the Society; they or one of them shall attend all Meetings of the Society and Council, and shall duly record the Minutes of the Proceedings. They shall issue the requisite notices, and read such papers to the Society as the Council may direct.

Powers of the Vice-Presidents.

25. A Vice-President, whether Honorary or nominated, in the chair, shall act with the power of the President in presiding and voting at any Meeting of the Society or Council, and in admitting Fellows; but no Vice-President shall be empowered to sign diplomas of admission of Honorary Fellows, or to expel Fellows or Honorary Fellows. In the absence of the President and Vice-Presidents, any Member of Council may be called upon by the Fellows then present, to preside at an Ordinary or Council Meeting, with the same power as a Vice-President.

Powers of the Council.

26. The Council shall have control over the papers and funds of the Society, and may, as they shall see fit, direct the publication of papers and the expenditure of the funds, in accordance with the provisions of the Charter.

27. The Council shall be empowered at any time to frame Regulations not inconsistent with these bye-laws, which shall be and remain in force until the next Annual General Meeting, at which they shall be either affirmed or annulled; but no Council shall have power to renew Regulations which have once been disapproved at an Annual General Meeting.

28. The Council shall have the custody of the Common Seal. The Common Seal shall not be affixed to any instrument, deed, or other document, except by order of the Council and in the presence of at least two Members of the Council, and in accordance with such other regulations as the Council shall from time to time prescribe. The fact of the seal having been so affixed shall be entered on the minutes of the Council.

29. No Dividend, Gift, Division, or Bonus in money shall be made by the Society, unto or between any of the Fellows or Members, except as hereinafter provided.

30. The Council shall publish a Journal of the Transactions of the Society, and such other Statistical Publications as they may determine upon, and may from time to time pay such sums to Editors and their assistants, whether Fellows of the Society or not, as may be deemed advisable.

31. All communications to the Society are the property of the Society, unless the Council allow the right of property to be specially reserved by the Contributors.

REMARKS *on the* MORTALITY *among the* TROOPS SERVING *in the* UNITED KINGDOM *from* CONSUMPTION.

By ROBERT LAWSON, ESQ., LL.D., *Inspector-General of Hospitals.*

[Read before the Statistical Society, 18th January, 1887. SIR RAWSON W. RAWSON, K.C.M.G., C.B., a Past President, in the Chair.]

THE mortality in the Army from diseases of the lungs, chiefly consumption, has long attracted attention, but it was not until the statistical reports on the health of the troops and those of the Registrar-General for the civil population of England and Wales were published, that the materials became available for even an approximate estimate of its relative amount. In the first report on the mortality among the troops in the United Kingdom, drawn up by the late Sir A. Tulloch, which appeared in 1839, it was estimated that the ratio per 1,000 of deaths among the civil population was only half that among the troops; and in the report for the period 1837-46, prepared by Sir A. Tulloch and Dr. Balfour, and published in 1853, the following appears on p. 32 with reference thereto:—

"The preceding results would seem to justify the inference "that there must be some peculiarity in the condition of the "soldier, or connected with his profession, to which civilians are "not exposed. What influence aggregation in masses, crowded "barracks, night duty, and exposure on guard, may exercise, we are "unable to determine; but the subject is one deserving careful "investigation."

During the thirty years which have elapsed since this was written, various authors have given their attention to the subject, and have advanced theories regarding it which they considered borne out by the facts at their disposal. The additional information which has accumulated, with this efflux of time, may now be employed to test how far the more prominent of these theories represent the efficient causes of the greater prevalence of the disease among the troops.

In prosecuting this inquiry it is obvious the first step is to ascertain the frequency of death from consumption among the adult population in civil life, at the military ages, with its fluctuations at different periods. These facts, collated with corresponding facts for the troops for the same periods, will show how far the variations among the latter may be referred to a different incidence of the disease on the country at large, and how far they are referable to influences to which soldiers are exposed and which do not affect the civil population.

The Statistical reports for the troops in the United Kingdom, up to 1836, are based chiefly on the sickness among the cavalry, and embrace too small a number to be of any value in this inquiry. Those for the ten years 1837-46 include all the corps at home, except Artillery and Engineers, and specify the ages of those serving. No detailed report was published for the years 1847-58, but from 1859 onwards they have appeared regularly, the last being for 1884, and these embrace the whole of the troops in the United Kingdom. To avoid accidental irregularities the facts from these reports have been arranged here in five-yearly groups, commencing with 1860, so that there are five quinquenniads available. To compare with the first group, 1837-46, there are the Registrar-General's reports from 1838 to 1842, in which the deaths from consumption are given for males and females separately, but not for the different ages. Though embracing but half the number of years, the latter show the frequency of consumption in civil life at that time, and the middle date, 1840, approximates that of the military returns, 1841-42, sufficiently to admit of a fair comparison between them after the necessary steps have been taken to apportion the deaths to the different ages. From 1860 onwards the deaths from consumption at the different ages are given in the Registrar-General's returns, and these have merely been grouped for the same years as the military returns, and the ratio per 1,000 of mortality obtained for each period of life. To ascertain the mean population at each period of life for these groups respectively, the ratio per 1,000 of deaths from all causes, together with the actual number of deaths for the period, were obtained from the Registrar-General's returns for each year in the group, and the means being taken the corresponding population was calculated. The results may not be strictly accurate, but in employing them to arrive at the ratios per 1,000 for the smaller number of deaths from consumption, the possible error will not be sensible in the second place of decimals. In apportioning the deaths from consumption from 1838 to 1842 to the different periods of life, it was assumed they would bear to the total deaths from that disease in these years the same ratio they exhibited during 1848-52, when they were given for the three periods 15—, 25—, 35—45. On making the calculation, 6,434, 6,307, and 4,688 were obtained for these ages respectively. As it was required, however, to distribute the first sum, 6,434, between the periods 15—, 20—, and it was found from the supplement to the thirty-fourth annual report of the Registrar-General that between 1851 and 1860 the deaths for 15— were 39·5 per cent., and for 20— 60·5 per cent. of their sum, 2,541 was set down for the former age, and 3,893 for the latter, as appears in Table II at the end.

Since 1836 the Army Returns have undergone considerable change, both in form and in nomenclature of diseases. It is necessary to describe these, and to indicate the methods which have been adopted to arrive at a series of results for the whole period, that may be fairly comparable with each other; and as many of the men who contract consumption in the service leave it before their complaint terminates, the numbers so discharged must be taken into consideration as well as the deaths, when estimating its frequency in the Army. The names of diseases in use before 1836 were continued up to 1847, and under these the great majority of consumptive diseases are recorded as phthisis pulmonalis; a number of cases classed as chronic catarrh terminated fatally, and as it was found on post-mortem examination that most of these presented the lesions of consumption, all deaths so returned have been included with those from phthisis in what follows. On the other hand, a small number of fatal cases from hæmoptysis, or spitting of blood, a portion of which no doubt were due to phthisis, have been omitted, and they may be held as balancing the excess of deaths from chronic catarrh not due to phthisis, but which could not be separated by the returns from those in which that disease was developed. The number discharged for consumption from 1837 to 1846 is not mentioned in the report, but an approximate estimate of it may be formed from the following data: excluding the Life Guards (for which the admissions to hospital are not given), there were 2,697 admissions for phthisis during the ten years; deducting one-tenth of these for men who came under treatment for this disease more than once, the actual cases of consumption would amount to 2,427, and of that number 2,027 died in the service, leaving 400, equal to a fifth of the deaths, as those discharged with this complaint in various stages of advancement. As to the progress of the disease, subsequent to discharge, there is a short notice at p. 43 of the report, stating that of 305 soldiers pensioned for consumption and spitting of blood, whose lives had been traced, 187 died in the course of sixteen years. Assuming that half those pensioned, or 153, died from the diseases in question, the remaining 34 deaths would be sufficient to allow for the mortality among the survivors from all other causes during the sixteen years; it is probable therefore that no serious error will be committed if it be assumed that one half of those discharged for consumption ultimately succumbed to that disease. The aggregate strength of the troops during the ten years was 266,680, among whom there were 2,274 deaths from phthisis and chronic catarrh, or 8·53 per 1,000; and if to this be added one-tenth (half of one-fifth) for the deaths of men discharged the service, 9·38 is obtained as the annual ratio per 1,000 of deaths from consumption arising in the army at that time.

In 1859 the Army Returns underwent great modification. Weekly returns were substituted for the monthly previously in use, and the nomenclature and classification of diseases assimilated to those employed by the Registrar-General at the time. These returns were received from all the arms of the service on duty in the United Kingdom, and a summary of them was given in the second page of the annual report, in which the strength under observation was taken as the sum of those given in the different weekly returns divided by the number of weeks in the year. The admissions to the sick list, the discharges, and deaths, are given for the classes and orders only, and as there were always a number of deaths of men absent from their corps or on detached duty, these were shown in the summary, and employed with the others in calculating the annual ratio per 1,000 of mortality. As it became apparent, however, that the number of men on detached duty who did not appear in the weekly returns was considerable, the total strength serving at home, received from the Adjutant-General, has been given in the summary from 1870 onwards, and the ratio of mortality was calculated from this, while the ratios for the admissions to, and discharges from, hospital were obtained from the strength in the weekly returns. Invaliding, unless in rare instances, takes place under the cognizance of medical officers, and men leaving the service in this way are accounted for in the annual reports, though the class or order of disease only for which they were discharged is in most cases given; the ratios per 1,000 of these, like those for the deaths, should be calculated on the total strength.

In addition however to the summary just alluded to, there are minor statements, referring to particular classes or orders of disease, in the reports, giving further details, and from 1859 up to 1873, in the appendix, an abstract showing the deaths for every disease by itself in corps which had served the whole year at home; for the purpose of distinction this will be referred to as Abstract A in what follows. The abstracts from 1863 to 1873 embrace the numbers discharged as well. As the aggregate strength, of which these abstracts show the deaths and discharges, amounts to from 79 to 86 per cent. of the total force at home during the corresponding periods, it has been assumed that when the total deaths or numbers discharged were given for the order or class only, those due to phthisis and hæmoptysis would bear the same ratio to the whole as they did in Abstract A, and this relation has been made use of accordingly to arrive at the results set forth in Table I hereto annexed so far as it was available.

Table I contains, in the first series of columns, the aggregate strength from which the details in Abstract A were obtained, together with the deaths from phthisis and hæmoptysis in that portion of the home force each year from 1860 to 1873, and the number discharged for those affections from 1863 to 1873. In the second series of columns the average strength serving at home each year is taken from the Adjutant-General's returns from 1861 to 1884; the strength given for 1860 is that for the troops together with the embodied militia mentioned in the medical sanitary report for that year; the number of the latter is not specified, but the total is allowed to stand as representing approximately the average strength of the troops of the line at home, the Adjutant-General's returns published not including 1860. Up to 1868 inclusive the deaths from phthisis and hæmoptysis for the whole force at home were placed in one group with those from other tubercular affections; to separate the latter, a number proportionate to those in the same group for the same year in Abstract A was subtracted from the total for the groups, leaving the figures in the table. In 1869 the nomenclature of the College of Physicians, then recently issued, was adopted in the military returns, and the deaths from tubercular affections for the whole service at home were included with others in the constitutional class. The deaths from phthisis and hæmoptysis were obtained from this by reducing it in the ratio of the deaths from the constitutional class to those from phthisis and hæmoptysis for the corresponding years in Abstract A, giving the results in the table up to 1873 inclusive. In 1874 this abstract ceased to appear, and the form of the return underwent other changes; the deaths from phthisis were still included in the constitutional class, both in the general summary for the whole force, and in another dealing with most of the stations; a subordinate return to the latter, however, giving the ratio per 1,000 of the deaths from the tubercular order, permitted of their numbers being calculated, and their ratio to the whole order being ascertained, and so afforded the means of separating the deaths from the tubercular order for the total force. The Abstract A from 1870 to 1873 showed 769 deaths from the tubercular order, of which 760 were from phthisis and hæmoptysis, and 9 only, or one eighty-fifth of the whole, from other diseases; by deducting this fraction from the sum for the tubercular order, the remainder gives the deaths from consumption. The results for 1874 and 1875 were obtained by this process. In 1876 there was another change of form in the medical returns, which however simplified them considerably. The deaths from phthisis were still included in the constitutional class in the general summary, but an analytic table was subjoined which showed the portion of the class due to the tubercular order; and taking one eighty-fifth from the latter, the deaths attributable to consumption were obtained. In 1879 the general abstract was expanded somewhat, and the tubercular order inserted by itself, so that it was merely necessary to deduct the fraction representing the affections other than phthisis and hæmoptysis it embodied. The actual number of deaths from phthisis alone specified in the returns for the five years 1880-84 was 807; but as this does not include those from hæmoptysis and other forms closely allied to phthisis, such as acute miliary tuberculosis, previously embraced under phthisis, the numbers are allowed to remain as they appear in Table I, as affording a more exact basis of comparison with those for preceding periods.

As to men discharged, those disposed of in this way for phthisis and hæmoptysis were included with the other affections usually grouped under the term tubercular from 1860 to 1868, and from 1869, with the change of form in the return, their order was incorporated with the others forming the constitutional class till 1876. From 1879 they have again been shown in the tubercular order. Abstract A gave in detail the diseases for which men were discharged, in 1863 for the first time, and this continued until 1873, after which that form of return was discontinued. The numbers shown as discharged in the first series of columns in Table I are taken directly from Abstract A, except those from 1860 to 1862. To obtain these it was assumed that the men who left the service in these years for phthisis and hæmoptysis would bear the same ratio to the tubercular order as was given by the numbers in Abstract A for 1863-64, in which, with a total of 1,037 for the order, 879 were for phthisis and hæmoptysis, and 158 for other forms of disease; consequently $\frac{1}{6\cdot 6}$ was subtracted from the total for the tubercular diseases for each year, leaving the results in the table. In the second series of columns in Table I the discharges for 1860-62 have been taken the same as in the first series; there may have been a few more, but as the medical reports do not show these, and no error of consequence will arise from their omission, the others have been allowed to stand; from 1863 to 1868 inclusive the totals in the tubercular order, for the troops serving at home, have been corrected by subtracting each year a number proportional to the non-phthisical cases in the order in Abstract A for the year. From 1869 to 1873 the ratio of the discharges for phthisis and hæmoptysis to those for the constitutional class each year, in Abstract A, was employed to separate these affections from the others in the constitutional class for the whole service for the same year, and the mean ratio for the years 1870-73, 1,601 : 2,833, was employed for the following three years 1874-76, for which no other correction was available. The reports for 1877-78 do not give the classes or orders of disease for which men were discharged; in these years the numbers in Table I were obtained from the Army Medical Department. From 1879 onwards the discharges for phthisis and hæmoptysis were included in the tubercular order; as 1,722 men were discharged for affections in this order in the four years 1870-73, of whom 1,601 had phthisis and hæmoptysis, and 121, or $\frac{1}{14\cdot2}$ of the whole, other affections, a deduction to this amount has been made from the numbers in the medical report to obtain those in Table I.

In the Registrar-General's reports phthisis is included in the tubercular order of constitutional diseases, and the other diseases of the lungs, embracing the ordinary inflammatory affections, bronchitis, pneumonia, and pleuritis, with some others, form the respiratory diseases, an order of the class of local diseases. Since the commencement of these reports there has been considerable variation in the relative numbers of deaths attributed to phthisis, and the affections of the respiratory order respectively, and doubts have arisen as to how far these were due to actual alteration in the frequency and fatality of the different diseases, or merely to a change of distribution proceeding from a more minute and correct diagnosis. This question had attracted the attention of the late Dr. Farr, and in his letter to the Registrar-General, in the report for 1862 (pp. 186—8), he showed that in the fifteen years 1843 to 1862 phthisis had diminished sensibly, and though pneumonia had varied little in frequency, bronchitis had increased 50 per cent.; phthisis was most frequent from 15 to 55 years of age, while the great majority of the deaths from respiratory diseases were in children under 5 years of age, and in adults above 55, and the increase in those from bronchitis were almost confined to these periods. From these facts Dr. Farr concluded that the increase of bronchitis "is not due " to confusion of nomenclature," and he puts the question, " what has " led to the recent increase of mortality from inflammation of the air " passages and the air cells of the lungs?" Dr. Longstaff, in his paper " On the recent decline in the English death-rate in connec- " tion with the causes of death, based on a comparison of the average " mortality of 1876-80 with that of 1861-70," read before this

Society in March, 1884, and published in vol. xlvii of this *Journal*, directs attention to the fact that phthisis had diminished between the ages 5 and 35 to an extent varying from 15 to 28 per cent., whereas *at all these ages the mortality from diseases of the lungs remained comparatively stationary* (p. 226); and for other reasons detailed elsewhere, he inferred that substantially the diagnosis of phthisis from bronchitis corresponds with nature. Again, Dr. Ogle, in his letter to the Registrar-General, on the mortality in the registration districts of England and Wales during the ten years 1871-80, in the Supplement to the 45th annual report (at p. xiv), expresses his belief that the opinion that the apparent diminution of phthisis was due simply to a transference from one heading to another, while the mortality really underwent little change, was probably to some extent true; still, as the registered mortality from phthisis fell at every one of the successive age periods, the registered mortality from diseases of the respiratory organs remained practically unaltered between 5 and 26 years of age, and only rose among children under 5 and among persons over 25, this can hardly be supposed to be the explanation of the whole matter. Dr. Ogle, adds, "how much of the fall in the registered "mortality from phthisis was real, and how much was really due "to transference, it is impossible to say; but it must be noted that "the mortality ascribed to other forms of tuberculosis, with the "exception of hydrocephalus, showed no decline."

As the military returns dealt with in this paper embrace data, both anterior, and subsequent to, those referred to in the three communications just noticed, it is necessary to trace the course of phthisis among the civil male population at military ages for a corresponding period. The details are given in Table II in the Appendix for the ages 15—, 20—, 25—, 35—45; the ratios of deaths per 1,000 living at each age for the successive quinquenniads mentioned are the following:—

Periods.	Ratio per 1,000 Living,				
	15—	20—	25—	35—45.	15—45.
1838–41	3·30	5·45	5·45	5·45	4·97
'50–54	2·44	4·12	4·06	4·02	3·71
'55–59	2·30	3·95	3·94	3·95	3·58
'60–64	2·33	3·93	3·96	3·99	3·60
'65–69	2·12	4·06	4·22	4·28	3·73
'70–74	1·85	3·43	4·01	4·23	3·47
'75–79	1·66	3·05	3·67	4·19	3·23
'80–84	1·41	2·54	3·24	3·73	2·81

From this table it appears that phthisis was considerably more prevalent from 1838 to 1842 than from 1850 to 1854; that in the next quinquenniad it fell a little, and remained practically at the same rate the following one, and, in each of these two, the ratio per 1,000 of deaths was nearly the same in each age-period from 20 to 45, while that at 15 was very close to three-fifths of that at 20. A change is apparent in 1865-69; above 35 the mortality increased considerably, and from 25 to nearly the same extent; there was an increase also from 20, but to a less extent, while at 15 there was an actual decrease. In 1870-74 the high ratio above 35 was continued, but at all previous ages there was a marked decrease of the death-rate. In 1875-79 the rate above 35 began to decline, while the fall continued at the other ages; and finally, in 1880-84 there was a still further fall in the death-rate at all the ages in the table. The marked decrease in the death-rate from phthisis from 1838-42 to 1850-54, while the relative mortality at 15 remained unaltered, shows a general amelioration in the social condition of the population during the interval; but the rise in the rate at ages above 25 in 1865-69, while at 20— the rise was evidently checked, and at 15— there was a sensible decrease, indicates that, with an active cause favouring an increase of mortality, there were other factors in operation with a contrary tendency, the action of which was first apparent among the young, but ultimately became obvious at every age in the table. From the numbers given by the Registrar-General at page lxx of his report for 1870, and in subsequent ones, it appears that the population of England and Wales was distributed between the chief towns, and small towns and country parishes, in the following proportions per cent.:—

	1851.	1861.	1871.	1881.
Chief towns	51·1	54·5	56·9	59·5
Small towns and country	48·9	45·5	43·1	40·5

and as it is well ascertained that residence in towns leads to a much greater mortality from phthisis and respiratory diseases than country life, the gradually increasing excess of the inhabitants in towns must actually have led to an augmented death-rate from these diseases, unless the injurious factors in urban life, which favour their origin, were kept in check by sanitary measures, and improvement in the social condition of the mass of the population. The reduction of the death-rate in recent years seems mainly attributable to hygienic measures, and these have no doubt influenced the occurrence of phthisis as well as other diseases. At the same time the medical treatment of phthisis also has been more successful than formerly in prolonging life, if not actually in curing the disease in a very large portion of cases. The beneficial operation of these ameliorations would naturally be looked for among the younger part of the population at first, and as it became more diffused its influence would gradually become apparent at more advanced ages, as the table shows it to have done.

The question of how far the reduction of phthisis was referable to transference of deaths from under that head to those for the inflammatory affections of the lungs, was also examined for males of the different ages, for the same period, but to save space the details have not been given here. As regards those between 15 and 45 however—during which period about 65 per cent. of the total deaths from phthisis among males take place, while about 11 per cent. only of the deaths from diseases of the lungs then occur—some notice is necessary. The inflammatory affections include bronchitis, pleuritis, pneumonia, and congestion of lungs; their numbers at the different ages, and in the successive quinquenniads, are given in Table III in the Appendix. The following are the results:—

Periods.	Ratio per 1,000 Living.				
	15—	20—	25—	35—45.	15—45.
1838–42	0·18	0·29	0·39	0·63	0·38
'50–54	0·25	0·41	0·56	1·04	0·58
'55–59	0·26	0·44	0·62	1·17	0·66
'60–64	0·27	0·46	0·65	1·34	0·70
'65–69	0·26	0·45	0·75	1·44	0·75
'70–74	0·29	0·45	0·80	1·66	0·84
'75–79	0·31	0·52	0·90	1·88	0·94
'80–84	0·31	0·49	0·83	1·77	0·88

From these figures it is obvious the mortality from the inflammatory affections of the lungs, at the ages 15— and 20— was low, and the increase in the successive periods moderate; at 25—, with a higher initial rate, the subsequent increase was greater, and at 35—45 both were still higher. All reached their maximum in 1875-79, and in 1880-84 they showed a distinct reduction except at 15—.

Comparing the ratios in this table with those for the corresponding ages and periods in the previous one, it is found that the reductions in the death-rate from phthisis at 15— and 20— far exceed the increases of the inflammatory affections. At 25—, the reduction of phthisis from 1838-42 to 1855-59 was largely in excess of the increase of the inflammatory affections; in the next two quinquenniads both forms of disease increased, phthisis considerably more than the other; but a fall then commenced, which, in 1875-79 amounted to 0·55, while the ratio for inflammatory diseases had risen 0·15 only. Between 35 and 45, after the great reduction from 1838-42 to 1850-54, phthisis increased during the next four quinquenniads by 0·33, the inflammatory affections rising in the same period 0·49, and in 1875-79 there was a further rise in the latter of 0·22, while phthisis declined 0·11. In 1880-84 there was a marked fall in the mortality from the inflammatory affections at all the ages except 15—, accompanied by a much greater fall from phthisis at all the life-periods in the table. Taking a general view of these fluctuations, it appears there was a great fall in the mortality from phthisis from 1838-42 to 1855-59; it then showed a tendency to rise, and in 1865-69, reached its highest point since 1842 at the different ages in the table except 15—; in 1870-74 the ratios again declined in a marked manner at all except the most advanced age, in which the decline commenced in the following quinquenniad, and this fall has continued to the last quinquenniad in the table. Accompanying these changes the inflammatory affections of the lungs had presented a pretty regular increase at each age from 1838-42 to 1875-79. In 1865-69, when the phthisis mortality rose, the increase at the age-periods from 20 to 35—45 exceeded the corresponding increase of the inflammatory affections, but when the former was decreasing, the diminution was much larger than the accompanying increase of the inflammatory affections, until in 1880-84 both forms of disease declined together. The obvious inference from these circumstances is that the reduction in the rate of phthisis was not due to transference of deaths from that disease to the inflammatory affections of the lungs.

On proceeding to compare the mortality from phthisis in the army with that among the male population, it must be borne in mind that the numbers under observation, at each age, differ very much from what is found in civil life, and to obtain a proper basis for comparison it is necessary to multiply the strength of the troops (in thousands and fractions thereof), by the ratio per 1,000 of deaths from phthisis among the civil population, of the same age for the corresponding years. The sums of these products for the different age-periods give the number of deaths that would have occurred among males in civil life similarly distributed as to age; but as the ages of those who die in the Army are not given in the returns, these must be treated as a single group, and the death-rate obtained for the whole force. These results are worked out in Table IV for the decade 1837-46, and for the five quinquenniads 1860 to 1884. In Table I the deaths from phthisis are given; in the first part of the table the results are for corps which had passed the whole year at home; these extend from 1860 to 1873; the second part includes all corps which passed any part of the year at home, the strength is the mean of that for the several months of the year, and includes men on detached duty who did not appear in the first part; the deaths are those of all men borne on strength who died during the year, whether with their corps or detached; and it will be seen on reference to the table that the ratios per 1,000 calculated on these different data agree as closely as could have been expected. The men discharged are slightly more numerous in the second than in the first part of the table, and their ratios being calculated from the whole strength, including detached men, are evidently lower than those in the first part where these were omitted.

As many of the men who are discharged for phthisis contracted in the service die of that disease soon afterwards, the numbers so dying should be added to those whose complaints terminated fatally while serving, in order to show how far phthisis is more common among soldiers than in civil life. Unfortunately however there is little information available on this point; allusion was made, at p. 3, to an inquiry into the subsequent history of 305 men pensioned for phthisis and hæmoptysis, of whom 187 had died in sixteen years; allowing half of them or 153 to have died from these affections within a few years after their discharge, the remaining 34 deaths would allow of a very high mortality among the other 152 for sixteen years. In the statistical and sanitary report for the army for 1860, it is mentioned at page 22 that of 57 men discharged from the Foot Guards (apparently in 1860) for tubercular diseases, and whose history could be traced, 15 had been awarded temporary pensions which had ceased at different periods prior to 1st September, 1861, leaving 43 who could be followed up to that date; of these 10 died in 1860, and 14 in 1861, or 24 deaths among 43 individuals, rather more than one half. From these data it seems probable that about a half of the men who leave the service with phthisis or hæmoptysis die of these diseases within a few years of their discharge, and no very serious error will be committed if this conclusion be adopted. Proceeding on this assumption, the following table shows the ratio per 1,000 of deaths which would have occurred among troops serving in this country, calculated at the rate prevailing among the civil male population of corresponding ages, as given in Table IV, and also the actual ratio per 1,000 of deaths, and a half of those discharged, from the second part of Table I.

Periods.	Phthisis in Army at Civil Rates.	Phthisis Observed.		
		Deaths.	Half of Discharges.	Total Deaths.
1837–46	5·09	8·53	0·85	9·38
'60–64	3·63	3·07	2·70	5·77
'65–69	3·81	2·57	2·26	4·83
'70–74	3·39	2·43	2·21	4·64
'75–79	3·21	2·45	2·22	4·67
'80–84	2·70	1·92	1·71	3·63

The first column in this table shows how phthisis would have diminished from the early to the later dates at the ratios observed in civil life, and the ratios per 1,000 differ very little from those among the male population for the same periods, as may be seen by comparing them with Table II. The rise in 1865-69 was caused by an actual advance of the ratios in civil life during the quinquenniad, applied to a higher mean age among the troops than in any of the preceding or following periods, as may be seen in Table IV. The deaths and numbers discharged in 1837-46 were accounted for at the commencement of the paper; they indicate that at that time cases of consumption were retained in the service in the great majority of instances until they terminated fatally. Since 1860 men labouring under this disease have been discharged in much larger numbers after their complaint became manifest, and the actual mortality in the service has been reduced below that in the first column, but, of course, by merely transferring the deaths which occurred subsequently from the army to the civil population; the deaths in the last column, which include the latter, show that, at every period mentioned, service in the army was attended by greater mortality from phthisis than would have been met with among men of the same age exposed to the ordinary causes of that disease in civil life. The decrease in the first column was from 5·09 per 1,000 in 1837-46, to 2·70 in 1880-84, or 47 per cent., while the actual mortality was from 9·38 in the former period, to 3·63 in the latter, or 61 per cent.; or starting from 1860-64, from which there is a continuous record in both columns, the reduction was from 3·63 to 2·70 per 1,000, or 28 per cent., as from the estimated death-rate of 5·77 to 3·63, or 37 per cent., showing in either instance that some progress had been made in reducing the excessive rate formerly met with in the service. When the various steps by which that diminished rate has been attained are examined, it appears that they did not pursue a parallel course with the changes at civil rates; thus from 3·63 in 1860-64 the ratio rose to 3·81 in 1865-69, and fell again to 3·21 in 1875-79, and to 2·70 in 1880-84; while the estimated mortality, which was 5·77 in 1860-64, fell to 4·83 in 1865-69, to 4·64 in 1870-74, remaining practically at the same rate in the next quinquenniad, and ultimately reaching 3·63 in 1880-84; and it is obvious these reductions were not accidental, as they were divided proportionally between the deaths which took place in the service, and those estimated as taking place after discharge. They indicate the operation of some factor among the troops in 1865-69, and 1880-84, that did not apply, or only partially applied, to persons in civil life at the corresponding periods.

In comparing the rates of mortality in the army from phthisis before 1846 with those after 1860, two points require to be borne in mind and allowed for. The first is that at the former period the troops were quartered in buildings mostly situated in, or in the immediate vicinity of large towns, and were in consequence exposed to the causes of disease affecting urban populations; while by the establishment of the camps at Aldershot, Shorncliffe, Colchester, and the Curragh, country localities, in 1855, a material portion of them exchanged these for the healthier surroundings of rural districts, and so lowered the general death-rate materially. Thus in the quinquenniad 1860-64 the strength and deaths from phthisis were:—

	Aggregate Strength	Deaths from Phthisis.	Ratio per 1,000.
In United Kingdom	435,874	1,337	3·07
„ camps	116,019	217	1·87
Remainder of United Kingdom	319,855	1,120	3·50

So that, as compared with 1837-46, the death-rate per 1,000 should be 3·50 instead of 3·07 in 1860-64. The other point is still more important; as mentioned above, the deaths from consumption in the service from 1837 to 1846 were 8·53 per 1,000, and a number equal to one-fifth of that was discharged, of which one half died. From 1860 onwards men affected with phthisis were discharged at an earlier stage of the complaint, and relatively in much larger numbers, so that the deaths in the service were only 3·07, while those discharged amounted to 5·40, of whom it is estimated one half died subsequently of the disease. The following comparison will render the effect of the later practice in reducing the mortality clear:—

	1837-41.	1860-64.
Ratio per 1000 of cases of phthisis	10·24	8·47
Of these died in the service	8·53	3·07
,, after discharge	0·85	2·70
Total	9·38	5·77
Leaving recoveries	0·86	2·70
Equal to	$\frac{1}{12}$th of whole	$\frac{1}{3}$rd of whole very nearly

Had the cases been retained in the service in the latter period as in the former, it is probable the survivors instead of being nearly one-third of the original cases, might not have amounted to one-sixth or one-eighth of them, or even less, and the deaths of course would have been augmented to a corresponding extent. By Table I, 2,354 men were discharged for phthisis from 1860 to 1864; and assuming that these took place at the camps and in the remainder of the home force in the same proportion as the deaths, there would have been 382 for the former and 1,972 for the latter, or in the ratios of 3·29 and 6·16 respectively. With the ratio of deaths already stated this gives the cases of phthisis for 1860-64, comparable with 1837-46, as 3·50 + 6·16, or 8·66 per 1,000; and if one-eighth be allowed for those that may have ultimately recovered, a mortality of 7·58 is obtained over the same base and under similar conditions in 1860-64 as in 1837-46, showing a reduction of the rate between these periods of 1·80 per 1,000 instead of 3·60, as in the table, while 1·81, the other half of the decrease in the estimated rate, is mainly referable to residence in the country, and to altered arrangements as to discharge from the service.

In a very able essay on the nature and varieties of destructive lung disease, included under the terms pulmonary consumption, as seen among soldiers, which gained the Alexander Prize in 1872, the author, Surgeon-Major F. H. Welch, then Assistant Professor of Pathology at Netley—a position which afforded the greatest facilities for investigating the question—gave the result of his observations as follows (omitting fractions) :—

	Per Cent.
Consumption originating in bronchitis and pneumonia	74
,, ,, with syphilitic taint	10
,, due to syphilis or tubercle	11
,, originating from pyæmia, embolism, dysentery, and diabetes	5
	100

("Army Medical and Statistical Report," 1872, p. 287.)

Mr. Welch subsequently refers to vitiated barrack atmosphere without or with constriction of chest, as being intimately concerned in the production of the cases in the first group (ibid., p. 357).

The following observations, by the late Dr. Parkes, express the general opinion as to the cause of the high rate of mortality from phthisis in the army: "The now well known fact of the great "prevalence of phthisis in most of the European Armies (French, "Prussian, Russian, Belgian, and English) can scarcely be "accounted for in any other way than by supposing the vitiated "atmosphere of the barrack room to be chiefly in fault. This is the "conclusion to which the Sanitary Commissioners for the Army "came in their celebrated report. And if we must also attribute "some influence to the pressure of ill-made accoutrements, and to "the great prevalence of syphilis, still it can hardly be doubted "that the chief cause of phthisis among soldiers has to be sought "somewhere else, when we see that with very different duties, a "varied amount of syphilis, and altered diet, a great amount of "phthisis has prevailed in the most varied stations of the army "and in the most beautiful climates, in Gibraltar, Malta, Ionia, "Jamaica, Trinidad, Bermuda, &c. (see history of those stations), "in all which places the only common condition was the vitiated "atmosphere which our barrack room system everywhere produced. "And as if to clench the argument, there has been of late years a "most decided decline in phthisical cases in these stations, while the "circumstance which has notably changed in the time has been the "condition of the air."—("Practical Hygiene," 4th edition, p. 116, 1873. Two editions have since appeared, the last in 1883; in this the above extract still remains.) With the evidence now available the validity of this opinion may be fairly tested.

In October, 1857, Lord Panmure, then secretary for war, appointed a Commission under the presidency of the late Lord Herbert to examine and report on the condition of the barracks and hospitals in the United Kingdom, and to recommend such alterations as they deemed requisite for their sanitary improvement. This Commission reported on these seriatim, indicating the changes in arrangement, ventilation, and occupation they recommended for each. The first report was for the London district, and was dated 8th June, 1858; Portsmouth and Chatham districts were reported on in July, and Woolwich, Maidstone, Manchester, and the South-eastern District in October. Reports on Plymouth and Devonport, the Cork and Curragh districts, Limerick, Exeter, and Bristol followed in February, 1859. Ten reports on other stations were sent in in 1859, five in 1860, and two in 1861. In their general report, dated April, 1861, the Commission gave a return of 162 barracks, containing 5,339 rooms, which were told off for the occupation of 75,801 men; on the basis of 600 cubic feet for each man, they recommended the numbers accommodated in these should be reduced to 53,806. In another return the Commissioners show that in 82 of these barracks, told off for 42,589 men, there were "no means of ventilation provided;" in 78 others, told off for 32,541 men, "the means of ventilation were deficient, or defective "in principle and inefficient in operation;" and in one, and portions of two others, accommodating 618 men, "the means of "ventilation provided were correct in principle, and tolerably "efficient in action." Up to 1860, therefore, 56 per cent. of the permanent barrack accommodation in the United Kingdom was without special means of ventilation; in 43 per cent. of it these had been provided to a varying extent, but in the opinion of the Commissioners to a very inefficient one, and in only 1 per cent., and this in recent buildings, were they at all adequate to provide a change of air sufficient to secure the health of the inmates. To effect the proposed alterations a sum of 45,000*l.* was included in the Army estimates for 1859, and a further sum of 50,000*l.* in those for 1860. It would thus be May or June, 1859, before the alterations were commenced, and their influence on the frequency of phthisis in 1859 could scarcely be appreciable. The improved means of ventilation were introduced very generally in 1862, though the reduction of the number of occupants had not been effected to the extent recommended at that date.

Reverting now to the remarks on the decrease of mortality from phthisis from 1837-46 to 1860-64, it appears that in permanent barracks (excluding camps) a fall of 1·80 per 1,000 occurred in twenty years before the improved ventilation was introduced, while from 1860-64 to 1875-79, a period of fifteen years after its introduction, the fall was 1·10 per 1,000 only, and this was not a progressive reduction, becoming apparent as the increased ventilation took effect, for the ratios for 1863 and 1864 were both higher than that for 1860. The ratios for the single years in the quinquenniad, however, are rather irregular, but when taken for 1860-61, and 1862-63, these fluctuations disappear, and, with that for 1864, and 1865, the first year of the next quinquenniad, they stand as follows:—

	1860-61.	1862-63.	1864.	1865.
Ratio per 1,000	5·80	5·83	5·56	4·84

So that the rates per 1,000 of deaths in 1864, the third year after the improved ventilation had been in operation, was but 0·24 under that for 1860-61, while the fall in 1865 was 0·72 or three times greater, and the mean for the whole quinquenniad was 4·83. There was a further decrease of 0·19 in the next quinquenniad, and the ratio remained the same the following one. These facts do not support the inference that the improved ventilation had any marked influence on the mortality from phthisis, while they indicate the operation of another factor in 1865, under which the death-rate remained practically the same for the following fourteen years. No one doubts that adequate ventilation exerts a beneficial influence on the health, but the facts just stated show that the reduction in the mortality in the army from phthisis since 1846 must have been due in the main to other causes, and that the effect of the improved ventilation on it has been much overrated. The fall in the mortality of 1·04 per 1,000 from 1875-79 to 1880-84 has not been included in that connected with the preceding period, as the ventilation had been almost completed by 1862, and the death-rate from phthisis in the three following quinquenniads had remained practically the same; the cause for the abrupt reduction in 1880-84 must therefore be sought for elsewhere.

That men in the army suffer more from phthisis than if they had remained in civil life is unquestionable, and this is intimately connected with their customs and occupation. When a civilian is about to undergo any considerable exertion he takes off part of his clothing, and when the work is over he replaces the garments he had previously removed, and thus obviates the chance of a chill. A soldier, on the contrary, has to undergo his chief exertion not only in his complete dress, but, until late years, with impervious belts over his chest and back, and often with a knapsack as well, which offer additional impediments to the full escape of the cutaneous exhalations; when dismissed from parade he commonly removes his accoutrements, and very often his coatee as well, and follows his avocations with nothing but a shirt over the chest and back, which is often soaked with perspiration, thus exposing himself to a chill, and if he have any disposition to weakness of the lungs, renders it active by frequent repetition of this practice. Formerly, when linen or calico shirts only were worn, the evil effects of this proceeding was frequent; when they became manifest medical officers were accustomed to recommend the individual to use flannel under the usual shirt, but the mischief had already taken place, and this was but a palliative. There was a very general feeling among experienced medical officers fifty to sixty years ago, that it would be advantageous to substitute flannel for linen shirts, and one regiment, the 85th, actually wore these; but the health of this corps was not thought so very different from that of others in which linen only was worn as to render it advisable to sanction the general substitution of flannel. Estimates of disease in those days, however, were quantitative rather than qualitative, a large mortality attracting attention, while the particular diseases which caused it received less consideration, and the material the 85th had in wear being a heavy one, much nearer a light blanket in texture than the shirts in use at present, there were practical difficulties in the way of its adoption which no longer apply. The employment of flannel shirts in place of linen or calico became frequent during the Crimean war, and the experience then gained led to their occasional use in the army since; and at last, in 1864, their employment received official sanction, a measure which has materially reduced the chances of a chill following the exposure so frequently occurring. It is to this substitution of flannel for linen or calico shirts in 1864, that the great reduction of the death-rate from phthisis in 1865 and subsequently is mainly attributable.

Another article of dress which influenced the soldier's health was his trousers. Up to 1823 these were of woollen material, but that year white trousers were introduced for summer wear, and for warm climates. These of course had to be washed frequently and were often put on while damp, and seldom with any under clothing, thus offering another chance of chill, which was by no means inoperative; these continued in use until 1846, when a light woollen material was substituted for the linen, which did not require such frequent washing, and which afforded the wearer greater protection from a chill during the ordinary cool weather in summer. Since that date a light woollen material has continued to be employed for summer wear in this country, and in most of our colonies, instead of linen, much to the soldier's comfort and benefit. The medical returns for the home service do not extend back far enough to enable the influence of these changes on the progress of consumption to be traced, but those for the foreign stations of the army do, and the result is a very striking one. Table V at the end gives the deaths from phthisis and chronic catarrh (under the heading of phthisis) for the Mediterranean, American, and West Indian stations, for the Cape of Good Hope, and for Mauritius and Ceylon for 1817-24, before the full introduction of white linen trousers, and for 1825-30, and 1831-36, after that event; corresponding facts are given for the Mediterranean and American stations for 1837-46, for which only the returns were published. The figures for the Cape for this period were extracted from the records in the principal medical officer's office there by myself. Neither the deaths of invalids from phthisis after leaving the station, nor the numbers ultimately discharged, are available up to 1836. The deaths of invalids from phthisis on the passage, and at home, are given for 1837-46, but not the numbers ultimately discharged from the service; these have not been included in the table, as they would have marred the comparison with the previous periods. From 1859 to 1873, under the altered nomenclature, phthisis and hæmoptysis are included under the term phthisis, and as the more detailed form of the published returns showed the deaths on the passage, and at home until ultimate disposal, and the numbers actually discharged for these diseases, the former are included with the deaths on the station, and their numbers and those of men discharged are given in Table V for these years. Corresponding facts for the peroid 1879-84 have been added to bring up the information to the latest date.

Up to 1824 a considerable number of men were discharged from the service, partly on reduction of establishment, partly for disability; the figures in the reports include both these in the same sum without any explanatory remark; from 1825 the numbers from each station discharged from the service for medical reasons are given, and the classes of disease for which they were invalided are specified, phthisis being included among the pulmonary affections. As the deaths from phthisis on the stations were materially influenced by the fluctuations in the amount of invaliding from pulmonary affections, these have been inserted in Table V for the periods from 1825 to 1846.

The following statement shows the ratios per 1,000 of deaths from phthisis on the station, in the undermentioned groups of colonies up to 1846, as far as available, and of the total deaths and half the numbers discharged for that disease after 1859, as given in Table V:—

Stations.	1817-24.	1825-30.	1831-36.	1837-46.	1859-73.	1879-84.
Mediterranean	3·22	2·86	5·11	4·20	3·29	2·18
American	3·67	5·11	5·98	4·69	3·20	2·78
West Indian................	7·33	6·71	8·60	—	3·42	2·14
Cape of Good Hope and Natal	2·27	1·86	2·84	2·48	3·09	1·35
Mauritius and Ceylon	2·81	2·47	4·68	—	3·80	3·20

The ratios per 1,000 discharged the service for pulmonary affections from these stations from 1825 to 1846, as far as recorded, were as under:—

Stations.	1825-30.	1831-36.	1837-46.
Mediterranean	5·25	1·94	4·71
American	4·19	4·08	4·69
West Indian	3·21	2·30	—
Cape and Natal	2·74	1·61	—
Mauritius and Ceylon	1·80	1·80	—

How far the mortality from phthisis on the stations previous to 1824 was influenced by men labouring under that disease in its earlier stages being sent home and discharged the service, it is impossible to say, but the fall of the ratios of deaths in 1825-30 at the Mediterranean and West Indian Stations, and the Cape, at all of which the invaliding for pulmonary affections was high, and its marked rise at these stations from 1831 to 1836, when the pulmonary affections sent home were largely reduced, seems to indicate the occurrence of such a vicarious influence; while at the American stations, where there was little alteration in the frequency of discharge for pulmonary affections from 1825-30 to 1831-36, there was a very marked rise of mortality from phthisis in the first of these periods, which increased still more in the following one, this does not seem to have been in operation.

The ratio of mortality from phthisis on the station diminished sensibly in the period 1837-46, both in the Mediterranean, American, and Cape stations. Unfortunately there are no details in the statistical reports for the interval between 1847 and 1859, after the linen trousers ceased to be worn, but, from information from the source already mentioned, it appears that at the Cape, with an aggregate strength of 72,357, there were only 126 deaths from phthisis, or 1·74 per 1,000, showing that even in that healthy climate the change to woollen material was followed by a decided reduction of the death-rate. The remarkable approximation of the death-rate from phthisis at the different stations from 1859 to 1873 could scarcely have been anticipated from the earlier experience, and the ratios though including the deaths up to the date of discharge, and half the men discharged, are, in the case of the American and Mediterranean stations, actually less than those for 1837-46, which embraced neither. It may be mentioned that the ratio of deaths merely for the Cape for 1859-73, though including several on the passage and at home, was 1·76 per 1,000 only, or practically the same as for the previous thirteen years.

The reduction of mortality from phthisis in 1880-84 differs from that in any previous quinquenniad in its amount, in being experienced in the Army as well as in civil life, and in being accompanied in both by a very marked diminution in the mortality from all causes. The following results, from Table II, show the progressive alteration in the ratio of deaths from all causes, and from phthisis, among the males aged 15 to 45 in England and Wales, in the successive quinquenniads, and the percentages of the former due to phthisis:—

Periods.	Ratios per 1,000.		Percentage of Total Mortality Due to Phthisis.
	All Causes.	Phthisis.	
1838–42	9·86	4·97	50·4
'50–54	9·73	3·71	38·1
'55–59	9·28	3·58	38·6
'60–64	9·45	3·60	38·1
'65–69	9·98	3·73	37·4
'70–74	9·74	3·47	35·6
'75–79	9·00	3·23	35·9
'80–84	8·11	2·81	34·6

From this table it is obvious that in 1838-42 phthisis was not only more frequent than in any subsequent quinquenniad, but produced a larger percentage of the general mortality. From 1850-54 to 1865-69 the ratio of deaths from all causes did not vary much, and that for phthisis fluctuated but slightly, this disease for the twenty years causing about the same percentage of the death-rate from all causes. In 1870-74 the general death-rate commenced to fall, and in the next two quinquenniads this continued, and became more pronounced; the ratio of phthisis diminished now more rapidly, so that while in 1865-69, with a death-rate from all causes of 9·98 per 1,000, 3·73 or 37·4 per cent. of it was due to phthisis, in 1880-84, with a ratio of 8·11 per 1,000 from all causes, 2·81 or 34·6 per cent. of it only was attributable to phthisis. Though some of this improvement is without doubt due to improved medical treatment, yet accompanied as the reduction of phthisis has been by mortality from all causes, both must in the main be referred to amelioration of the social condition of the general population and their surroundings, caused by the more general adoption of sanitary measures since 1870.

In forming a comparative statement to the above for that portion of the Army serving in the United Kingdom, it is necessary to include the deaths of men discharged for phthisis with those from all causes which occurred before discharge, to bring them up to the numbers really attributable to service in the army. This has been done in Table VI in the appendix. The results are given in the following abstract, which shows the ratios per 1,000 of deaths from all causes among the troops in the United Kingdom, including those from phthisis after discharge, with the estimated ratio of deaths from phthisis, and the percentage of total mortality due to phthisis at the different periods mentioned. A column, the data for which are given in Tables II and IV, has been added to show what the deaths from all causes would have amounted to with the varying ages of those serving at the rates among the civil population:—

Periods.	Ratios per 1,000. All Causes among Troops. Military Ages. Civil Rates.	Ratios per 1,000.		Per Cent. of Total Mortality due to Phthisis.
		Total Deaths attributable to Service.	Deaths, Phthisis, Estimated.	
1837-46	9·61	17·95	9·38	52·3
'60-64	8·76	11·60	5·77	49·7
'65-69	9·41	10·96	4·83	44·1
'70-74	9·05	10·72	4·64	43·3
'75-79	8·54	10·00	4·67	46·7
'80-84	7·25	8·29	3·63	43·8

Owing to the varying distribution of ages in the army, the ratios of mortality from all causes, in the first column, deviate very much from those in civil life, though calculated at the same rates for each age. Taking 25 as the dividing point, the ages of the troops in the successive periods were:—

	Under 25.	Above 25.
	Per cnt.	Per cnt.
In 1837-46	52·0	48·0
,, '60-64	56·5	43·5
,, '65-69	44·2	55·8
,, '70-74	50·3	49·7
,, '75-79	53·9	46·1
,, '80-84	57·0	43·0

Thus, with one exception, more than half the troops were under 25 years of age. In two periods, 1860-64 and 1880-84, the excess under 25 was about identical, 57 per cent. being under that age, and 43 above it; in the exceptional case, 1865-69, the proportion was reversed, 44 per cent. only being under 25, and 56 above that age.

Though the mortality among the troops in 1837-48 was almost double that among males in civil life between 15 and 45, the percentage of it caused by phthisis was nearly the same; and, in 1860-64, though the total deaths among the troops were only about two-thirds of those in the previous period, the percentage due to phthisis was but little altered. In the quinquenniad 1865-69, when the mortality from all causes in civil life, and that from phthisis, reached their highest point since 1850, there was a marked decrease in the former among the troops, and a still greater one in the ratio of phthisis, which then constituted 44·1 per cent. of the total mortality instead of 49·7 as it had done the previous quinquenniad; and, with a rapidly declining mortality from all causes in subsequent periods, the percentage due to phthisis has continued to fluctuate about the same point.

Had the mortality from all causes, and from phthisis, in 1860-64, and in 1865-69, been proportional to those derived from the age-distribution of the troops in these periods with the rates for the same in civil life, they would have been in the ratio of 8·76 to 9·41, instead of being almost exactly the reverse. As has been explained fully above, a new factor came into operation in 1864 which not only neutralised the influence of the advance of age in the next five years on the mortality from all causes, but actually effected a considerable reduction of it, and at the same time in the percentage of phthisis embraced in that mortality. Since 1869 the mortality from all causes according to the military ages and civil rates has fallen at an accelerated ratio until the difference between the last two quinquenniads was 1·31 per 1,000; in the service the total mortality has pursued a similar course, the ratio being sensibly higher, but the difference between those for 1875-79 and 1880-84 being 1·71, and phthisis constituting about the same percentage of the whole as the 1865-69.

The course of phthisis at the colonial stations of the army since 1859 as given above, merits notice before closing this paper. I endeavoured to form a table for these similar to Table VI, comparing the results for the period 1859-73 with that for the United Kingdom from 1860-74, and the period 1879-84 for the former with 1880-84 for the latter; but on going into the matter, it appeared that while in the Mediterranean and American stations, and at Mauritius and Ceylon, there was a decided reduction of deaths from all causes as well as from phthisis in the second period, in the West Indian, owing to epidemics, the total mortality in the second period exceeded that in the first by 42 per cent., and at the Cape, in consequence of the extensive field operations since 1879, the ratio of deaths from all causes, even after excluding those killed in action, was 84 per cent. greater than from 1859-73, yet in each instance there was a very marked reduction of the mortality from phthisis in the second period. Inferences drawn from such discrepant materials would be very unsatisfactory, but a comparison between the actual ratios of mortality from phthisis as derived from Table V, without reference to the deaths from all causes, will afford both interesting and useful information. Thus the ratio per 1,000 of deaths from phthisis—

	In First Period.	In Second Period.	Percentage of Reduction.
Was among troops in United Kingdom........	5·07	3·63	28·4
,, on the foreign stations, specified in Table V	3·28	2·08	36·6

So that with a considerably lower rate for the foreign stations from 1859 to 1873 than in the United Kingdom in the corresponding period, the reduction for the foreign stations in 1879-84 was 36·6 of the previous ratio as against 28·4 of that in the United Kingdom. These facts justify the inference that the influences which led to the striking diminution among both the civil population and the troops in the United Kingdom, from 1880 to 1884, must have been active also in those colonies where the troops were quartered. It is sufficient on this occasion to have brought out this circumstance clearly, leaving it for future investigation to indicate in detail what these beneficial influences are.

APPENDIX.

TABLE I.—*Strength, and Deaths from Phthisis and Hæmoptysis, and Numbers Discharged for these Affections, among the Troops Serving in the United Kingdom; 1st, as given in Abstract 1 of the Medical and Statistical Reports, embracing Corps which had been at Home the Whole Year only; and 2nd, the Average Strength at Home during the Year, from the Adjutant-General's Returns, with the Total Loss by Death and Discharges from these Affections from the Medical and Statistical Reports.*

Years.	Strength, Deaths, and Discharges for Phthisis and Hæmoptysis as given in Abstract A Medical and Statistical Reports.			Strength from Adjutant-General's Returns, with Total Deaths and Numbers Discharged, for Phthisis and Hæmoptysis, from Medical and Statistical Reports.		
	Strength.	Died.	Discharged.	Strength.	Died.	Discharged.
1860	83,386	322	351	97,703	332	351
'61	81,500	276	624	93,470	290	624
'62	76,029	239	491	85,398	281	491
'63	70,819	179	435	80,908	223	439
'64	63,153	161	444	78,395	211	449
Sums	374,884	1,177	2,345	435,874	1,337	2,354
Ratios per 1,000	—	3·14	6·26	—	3·07	5·40
1865	62,911	123	421	80,045	174	426
'66	59,758	147	366	79,654	201	372
'67	62,901	183	325	83,131	236	330
'68	68,350	187	283	84,979	237	296
'69	68,962	175	412	81,542	206	422
Sums	322,882	815	1,807	409,351	1,054	1,846
Ratios per 1,000	—	2·52	5·60	—	2·57	4·51
1870	70,131	200	428	84,848	253	436
'71	87,142	194	371	100,877	231	393
'72	85,722	196	423	99,307	231	443
'73	77,530	170	379	95,767	211	394
'74	—	—	—	93,114	224	429
Sums	320,525	760	1,601	473,913	1,150	2,095
Ratios per 1,000	—	2·37	5·00	—	2·43	4·42
1875	No	return		92,802	252	379
'76				92,781	263	390
'77				97,610	220	473
'78				105,006	192	507
'79				84,380	232	350
Sums	—	—	—	472,579	1,159	2,099
Ratios per 1,000	—	—	—	—	2·45	4·44
1880	No	return		87,843	172	339
'81				87,992	195	320
'82				90,075	178	341
'83				85,960	146	277
'84				86,013	149	218
Sums	—	—	—	437,883	840	1,495
Ratios per 1,000	—	—	—	—	1·92	3·41

Table II.—*Mean Annual Deaths from all Causes, and from Phthisis and Hæmoptysis, among Male Population in England and Wales for the Ages* 15—45, *for the Periods mentioned, with their Ratios per* 1,000 *Living at each Age, and the Percentage of Deaths from Phthisis to those from all Causes.*

Period.	Ages.	Mean Annual Numbers Living.	Mean Annual Deaths.		Ratios per 1,000.		Percentage of Phthisis on all Causes.
			All Causes.	Phthisis and Hæmoptysis	All Causes.	Phthisis and Hæmoptysis.	
1838-42 ...	15— ...	770,304	5,577	2,541	7·24	3·30	45·6
	20— ...	714,775	6,676	3,893	9·34	5·45	58·4
	25— ...	1,158,266	11,490	6,307	9·92	5·45	54·9
	35—45 ...	860,493	10,825	4,688	12·58	5·45	43·3
Sums and ratios......		3,503,838	34,568	17,429	9·86	4·97	50·4
1850-54 ...	15— ...	885,174	6,090	2,164	6·88	2·44	35·5
	20— ...	803,407	7,311	3,310	9·10	4·12	45·3
	25— ...	1,328,586	12.967	5,397	9·76	4·06	41·6
	35—45 ...	1,026,266	12,972	4,122	12·64	4·02	31·8
Sums and ratios......		4,043,433	39,340	14,993	9·73	3·71	38·1
1855-59 ...	15— ...	942,546	6,070	2,168	6·54	2·30	35·2
	20— ...	839,252	7,184	3,317	8·56	3·95	46·1
	25— ...	1,371,459	12,782	5,406	9·32	3·94	42·3
	35—45 ...	1,092,484	13,372	4,311	12·24	3·95	32·3
Sums and ratios......		4,245,741	39,408	15,202	9·28	3·58	38·6
1860-64 ...	15— ...	975,791	6,167	2,271	6·32	2·33	36 9
	20— ...	870,165	7,379	3,419	8·48	3·93	46·5
	25— ...	1,422,881	13 432	5,631	9·44	3·96	41·9
	35—45 ...	1,152,415	14,797	4,598	12·84	3·99	31·1
Sums and ratios......		4,421,252	41,775	15,919	9·45	3·60	38·1
1865-69 ...	15— ...	1,033,443	6,304	2,186	6·10	2·12	34·8
	20— ...	881,733	7,830	3,579	8·54	4·06	47·5
	25— ...	1,512,427	15,457	6,384	10·22	4·22	41·3
	35—45 ...	1,196,098	16,554	5,117	13·84	4·28	30·9
Sums and ratios......		4,623,701	46,145	17,266	9·98	3·73	37·4
1870-74 ...	15— ...	1,111,632	6.403	2,055	5·76	1·85	32·1
	20— ...	975,676	7,942	3,346	8·14	3·43	42·1
	25— ...	1,616,796	16,362	6,487	10·12	4·01	39·6
	35—45 ...	1,256,857	17,596	5,322	14·00	4·23	30·2
Sums and ratios......		4,960,961	48,303	17,210	9·74	3·47	35·6
1875-79 ...	15— ...	1,192,886	6,036	1,981	5·06	1·66	32·8
	20— ...	1,044,034	7,350	3,180	7·04	3·05	43·3
	25— ...	1,725,714	15,704	6,330	9·10	3·67	40·3
	35—45 ...	1,342,662	18,663	5,622	13·90	4·19	30·1
Sums and ratios......		5,305,296	47,753	17,113	9·00	3·23	35·9
1880-84 ...	15— ...	1,285,662	5.914	1,818	4·60	1·41	30·7
	20— ...	1,125,165	6 841	2,853	6·08	2·54	41 8
	25— ...	1,850,736	15,102	5,995	8·16	3·24	39·7
	35—45 ...	1,440,674	18,383	5,378	12·76	3·73	29·2
Sums and ratios......		5,702,237	46,240	16,044	8·11	2·81	34·6

TABLE III.—*Mean Annual Deaths from Bronchitis, Pleurisy, Pneumonia, and Congestion of Lungs among Male Population in England and Wales of the Ages* 15—45, *for the Periods mentioned, with their Ratios per* 1,000 *Living at each Age.*

Period.	Ages.	Mean Annual Deaths.				Ratios per 1,000 Living.				Sums of Preceding Four Columns per 1,000 Living.	Phthisis per 1,000 Living.
		Bronchitis.	Pleurisy.	Pneumonia.	Congestion of Lungs.	Bronchitis.	Pleurisy.	Pneumonia.	Congestion of Lungs.		
1838–42	15—	7	16	116	—	0·01	0·02	0·15	—	0·18	3·30
	20—	11	24	174	—	0·02	0·03	0·24	—	0·29	5·45
	25—	32	48	368	—	0·03	0·04	0·32	—	0·39	5·45
	35—45	58	53	427	—	0·07	0·06	0·50	—	0·63	5·45
Sums and ratios per 1,000......		108	141	1,085	—	0·03	0·04	0·31	—	0·38	4·97
1850–54	15—	49	20	151	—	0·06	0·02	0·17	—	0·25	2·44
	20—	83	34	214	—	0·10	0·04	0·27	—	0·41	4·12
	25—	235	65	442	—	0·18	0·05	0·33	—	0·56	4·06
	35—45	450	77	533	—	0·44	0·08	0·52	—	1·04	4·02
Sums and ratios per 1,000......		817	196	1,340	—	0·20	0·05	0·33	—	0·58	3·71
1855–59	15—	58	21	157	13	0·06	0·02	0·17	0·01	0·26	2·30
	20—	99	35	221	13	0·12	0·04	0·26	0·02	0·44	3·95
	25—	292	62	450	35	0·21	0·05	0·33	0·03	0·62	3·94
	35—45	591	73	555	51	0·54	0·07	0·51	0·05	1·17	3·95
Sums and ratios per 1,000		1,040	191	1,383	112	0·25	0·05	0·33	0·03	0·66	3·58
1860–64	15—	60	21	172	13	0·06	0·02	0·18	0·01	0·27	2·33
	20—	103	35	244	13	0·12	0·04	0·28	0·02	0·46	3·93
	25—	330	62	508	32	0·23	0·04	0·36	0·02	0·65	3·96
	35—45	745	78	668	50	0·65	0·07	0·58	0·04	1·34	3·99
Sums and ratios per 1,000......		1,238	196	1,592	108	0·28	0·04	0·36	0·02	0·70	3·60
1865–69	15—	60	22	165	19	0·06	0·02	0·16	0·02	0·26	2·12
	20—	93	29	245	23	0·11	0·03	0·28	0·03	0·45	4·06
	25—	384	76	597	58	0·26	0·05	0·40	0·04	0·75	4·22
	35—45	810	77	741	80	0·68	0·07	0·62	0·07	1·44	4·28
Sums and ratios per 1,000......		1,347	204	1,748	180	0·29	0·04	0·38	0·04	0·75	3·73
1870–74	15—	67	27	204	18	0·06	0·03	0·18	0·02	0·29	1·85
	20—	88	39	287	28	0·09	0·04	0·29	0·03	0·45	3·43
	25—	388	87	739	79	0·24	0·05	0·46	0·05	0·80	4·01
	35—45	942	89	954	103	0·75	0·07	0·76	0·08	1·66	4·23
Sums and ratios per 1,000		1,485	242	2,184	228	0·30	0·05	0·44	0·05	0·84	3·47
1875–79	15—	66	34	241	20	0·06	0·03	0·20	0·02	0·31	1·66
	20—	103	46	375	23	0·10	0·04	0·36	0·02	0·52	3·05
	25—	406	98	944	83	0·24	0·06	0·55	0·05	0·90	3·67
	35—45	1,022	111	1,283	112	0·76	0·08	0·96	0·08	1·88	4·19
Sums and ratios per 1,000......		1,597	289	2,843	238	0·30	0·05	0·54	0·05	0·94	3·23
1880–84	15—	58	44	277	17	0·05	0·03	0·22	0·01	0·51	1·41
	20—	76	46	406	19	0·07	0·04	0·36	0·02	0·49	2·54
	25—	316	106	1,053	56	0·17	0·06	0·57	0·03	0·83	3·24
	35—45	860	119	1,475	95	0·60	0·08	1·02	0·07	1·77	3·73
Sums and ratios per 1,000......		1,310	315	3,211	187	0·23	0·06	0·56	0·03	0·88	2·61

TABLE IV.—*Showing the Ages of the Troops serving in the United Kingdom for the periods mentioned, and the Deaths which would have occurred from Consumption among those at the rates prevailing among the Civil Male Population of the same Ages. The column headed* 35— *includes the very small number of men aged* 45 *and upwards remaining in the service.*

Period.	Remarks.	Ages.				Sum of Ages.	Ages.	Total Strength	Rates per 1,000 for Consumption in Civil Male Population.	Corresponding Number for Troops.
		15—	20—	25—	35—					
1837 to 1846	Numbers specified in medical returns......	44,144	92,503	89,394	36,680	262,721	15—	44,809	3·30	148
	The above corrected to total strength ... 266,680	44,809	93,897	90,741	37,233	266,680	20—	93,897	5·45	512
							25—	90,741	5·45	495
							35—	37,233	5·45	203
							Sums	266,680		1,358
	Per 1,000.	168	352	340	140	1,000	Ratio per 1,000 for Troops			5·09
1860 to 1864	Numbers specified in medical returns......	74,282	141,722	130,804	35,153	381,961	15—	84,767	2·33	197
	The above corrected to average strength in adjutant-general's returns 435,874	84,767	161,726	149,266	40,115	435,874	20—	161,726	3·93	635
							25—	149,266	3·96	591
							35—	40,115	3·99	160
							Sums	435,874		1,583
	Per 1,000	194	371	342	93	1,000	Ratio per 1,000 for Troops			3·63
1865 to 1869	Numbers specified in medical returns......	59,188	87,413	148,753	36,111	331,465	15—	73,096	2·12	155
	The above corrected to average strength in adjutant-general's returns 409,851	73,096	107,953	183,706	44,596	409,351	20—	107,953	4·06	438
							25—	183,706	4·22	775
							35—	44,596	4·28	191
							Sums	409,351		1,559
	Per 1,000	178	264	449	109	1,000	Ratio per 1,000 for Troops			3·81
1870 to 1874	Numbers specified in medical returns......	70,055	87,329	117,800	37,417	312,601	15—	106,206	1·85	196
	The above corrected to average strength in adjutant-general's returns 473,913	106,206	132,394	178,588	56,725	473,913	20—	132,394	3·43	454
							25—	178,588	4·01	716
							35—	56,725	4·28	243
							Sums	473,913		1,609
	Per 1,000	224	279	377	120	1,000	Ratio per 1,000 for Troops			3·39
1875 to 1879	Numbers given in adjutant-general's annual returns, corrected to average strength in same ...	77,818	171,907	173,724	85,130	472,579	15—	77,818	1·66	129
							20—	171,907	3·05	524
							25—	137,724	3·67	505
							35—	85,130	4·19	357
							Sums	472,579		1,515
	Per 1,000	165	364	291	180	1,000	Ratio per 1,000 for Troops			3·21
1880 to 1884	Numbers given in adjutant-general's annual returns, corrected to average strength in same ...	74,815	174,247	141,288	47,533	437,883	15—	74,815	1·41	105
							20—	174,247	2·54	443
							25—	141,288	3·24	458
							35—	47,533	3·73	177
							Sums	437,883		1,183
	Per 1,000	171	398	323	108	1,000	Ratio per 1,000 for Troops			2·70

TABLE V.—*Strength, and Deaths from Phthisis, at undermentioned Stations, and Numbers Discharged from Service for Pulmonary Affections Contracted at them, from* 1817 *to* 1846; *also Deaths at the Station, on Passage Home, and in this Country from Phthisis, and the Numbers Discharged from Service for same Disease between* 1859 *and* 1873, *and* 1879 *and* 1884.

Stations.	1817-24.			1825-30.			1831-36.			1837-46.			1859-73.			1879-84.		
	Aggregate Strength	Phthisis. Died on Station.	Pulmonary Affections. Discharged Service.	Aggregate Strength	Phthisis. Died on Station.	Pulmonary Affections. Discharged Service.	Aggregate Strength	Phthisis. Died on Station.	Pulmonary Affections. Discharged Service.	Aggregate Strength	Phthisis. Died on Station.	Pulmonary Affections. Discharged Service.	Aggregate Strength	Phthisis.		Aggregate Strength	Phthisis.	
														Died.	Discharged Service.		Died.	Discharged Service.
Gibraltar	20 214	47	Not specified in Returns	20 894	65	120	19,161	126	35	33 131	124	170	72,843	89	318	27,450	27	47
Malta	15 774	70		12.320	35	77	12.732	65	48	21,172	107	97	80,111	133	269	27.973	40	60
Ionian Islands	26 763	85		23.775	63	102	19.753	74	17	26,201	107	112	21,128	27	61	—	—	—
Sums	62,751	202		56,989	163	299	51,648	265	100	80,504	338	379	174,082	249	648	55 423	67	107
Ratio per 1,000	—	3·22		—	2·86	5·25	—	5·11	1·94	—	4·20	471	—	1·43	3·72	—	1·21	1·93
Bermuda	2,854	14		3 742	25	154	5,125	42	144	11,224	67	50	21,219	43	72	9,948	11	21
Nova Scotia	18.766	77		14,138	66		13 538	76		26.806	144	124	27,703	40	399	10,009	15	38
Canada	28,742	94		18,903	97		16,635	93		90 456	392	429	97,156	149				
Sums	50,362	185		36,783	188	154	35.298	211	144	128,486	603	603	146,078	232	471	19.957	26	59
Ratio per 1,000	—	3·67		—	5·11	4·19	—	5·98	4·08	—	4·69	4 69	—	1·59	3·22	—	1·30	2·95
Windward and Leeward Ils.	31,131	246		26,292	205	90	29 238	256	77	No	return		14,504	27	48	5,365	5	13
Jamaica	20,159	130		15.433	75	44	15,975	133	27				9,464	16	30			
Sums	51,290	376		41,725	280	134	45.213	389	104	No	return		23,968	43	78	5,365	5	13
Ratio per 1,000	—	7·33		—	6·71	3·21	—	8·60	2·30				—	1·79	3·25	—	0·93	2·42
Cape of Good Hope & Natal	11.033	25		10 222	19	28	8,089	23	13	26,970	67	—	56,929	100	151	38,703	27	50
Ratio per 1,000	—	2·27		—	1·86	2·74	—	2·84	1·61	—	2·48	—	—	1·76	2·65	—	0·70	1·29
Mauritius	9,903	35		9,056	21	23	11,556	61	30	No	return		19,791	42	58	2,194	1	4
Ceylon	18,553	45		12,027	31	15	12,398	51	13				13,652	35	42	5,790	14	17
Sums	28,456	80		21,083	52	38	23.954	112	43	No	return		33,443	77	100	7,984	15	21
Ratio per 1,000	—	2·81		—	2·47	1·80	—	4·68	1·80				—	2·30	2·99	—	1·88	2·63

Table VI.—*Showing the Strength, Deaths from all Causes in the Service, and Half the Men Discharged with Phthisis among the Troops in the United Kingdom; also the Percentage of the Total Mortality due to Phthisis at the undermentioned Periods.*

Periods.	Aggregate Strength.	Deaths in Service, all Causes.	Ratios per 1,000.				Percentage of Total Mortality due to Phthisis.
			All Causes in Service.	Half Men Discharged for Phthisis.	Total Deaths attributed to Service.	Estimated Deaths from Phthisis.	
1837-46	266,680	4,561	17·10	0·85	17·95	9·38	52·3
'60-64	435,874	3,881	8·90	2·70	11·60	5·77	49·7
'65-69	409,351	3,560	8·70	2·26	10·96	4·83	44·1
'70-74	473,913	4,034	8·51	2·21	10·72	4·64	43·3
'75-79	472,579	3,678	7·78	2·22	10·00	4·67	46·7
'80-84	437,883	2,880	6·58	1·71	8·29	3·63	43·8

Discussion *on* Dr. Lawson's Paper.

The Chairman (Sir Rawson W. Rawson, K.C.M.G., C.B.) said, that not very long ago a paper was read by Mr. Humphreys showing how the length of life among the civil population had increased during the last quinquennium, and he thought they were now very much indebted to Dr. Lawson for bringing out the fact that there had been a general decrease of the fatal influence of phthisis both in the civil population and the army. In the early period mentioned in the paper the disease appeared to have proved fatal in more than 2,000 cases out of 2,400. That was about 83 per cent., so that more than four-fifths proved fatal. A number of these were discharged, and more than half of them died from it in civil life. The evidence brought forward showed that not only in civil life but also in the army a very great improvement had taken place with regard to the treatment and incidence of the disease. A great part of this result had been brought about by better sanitary arrangements in the barracks and in the soldiers' clothing. When he was in the Barbados the barracks there were at one time occupied by two regiments and a wing, and it was proved that only about one regiment could be maintained there in health. On one occasion he went into an abandoned room and saw where the soldiers used to sleep in hammocks in double tiers. The room was only about 9 feet or 10 feet high, and yet the men had had to sleep in tiers one above the other. It was therefore no wonder that the mortality among them had been great.

Dr. Longstaff said the subject was one of extreme intricacy and difficulty. Some time ago he was asked to write upon it, but on looking into the matter he came to the conclusion that the difficulties were altogether too great for him to deal with. He therefore respected the great courage of Dr. Lawson who had taken in hand such a gigantic business. He was not prepared to endorse all the deductions that had been drawn from the figures, mainly because he thought that the foundations upon which they were built were somewhat uncertain. To compare military with civil statistics was objectionable because of one inherent fallacy which ran throughout the whole of the figures. Civil statistics were only an approximation to accuracy; still, they applied to a very large population, and they were calculated by the whole aggregate mass of the medical practitioners of the country. Very different was it with regard to military statistics. The population they dealt with was small, was constantly being changed in sudden and remarkable ways, and above all was a selected population; while the statistics were calculated by a specially selected class of medical men, who probably had on the average a better knowledge of their patients than the ordinary medical practitioner of the country.

Dr. Lawson had not alluded to the method of recruiting. Until perhaps very recently the materials from which the army was drawn had not been a fair sample of the people of the country. In past times notoriously, and still to a great extent it was recruited from the lowest ranks of the population. Then, owing to the number of men voted by the House of Commons varying from year to year, the rigidity with which the medical officers rejected recruits varied considerably. Political and financial considerations led to a more strict selection at one time than at another, as also did the fluctuations in the state of the labour market and the excitement of impending war. Invaliding too, and selection of men for foreign service, varied at different times, and when there was a large number of the men at home they would probably have a higher average state of health than when there were fewer. Dr. Lawson took the men by ages, but as regarded the group 15—20, there were in the civil population more men of the age of 15 than of 16, and 16 more than 17, the fewest being 19; whereas in the army it was notoriously the reverse. He was pleased to find that Dr. Lawson bore out the substantial distinction in diagnosis between phthisis and inflammatory diseases of the lungs. The foundation for the allowance for the number of deaths of men discharged was very insufficient. It appeared to rest on following up the subsequent history of two small groups of pensioners. That was no doubt all that was available, but it was hardly fair to infer from the number of deaths of pensioners in 1860 that there would be the same proportion in 1870, and still less in 1880. If men were invalided in an early stage of the disease the mortality would be comparatively small, while if from political exigencies few were discharged, the mortality among that few would be comparatively large. It did not appear to him correct to compare the deaths of invalids during sixteen years after discharge with the total strength of five years. It did not appear, either, that the scale of discharges would be the same in town and in camp. *A priori* he should be disposed to consider that at Aldershot, where the men would have to do more rigorous duty than in a town, the medical officers would be more apt to discover their weakness. It was very disappointing that Dr. Lawson should be of opinion that the admirable suggestions of Lord Herbert's commission, and the important alterations that subsequently took place in the way in which troops were quartered, had very little effect on the mortality from phthisis. He was disposed to think that their influence had been considerable. In consequence of improved housing it had been found that the West Indies had become a very healthy station, instead of having consumption more prevalent there than anywhere else. Notwithstanding these criticisms, he fully appreciated the very great difficulties under which Dr. Lawson had laboured, and the great pains and care which he had bestowed on the subject.

Captain Douglas Galton, R.E., C.B., LL.D., &c., said he was not prepared to speak on the paper, as it was one which contained much matter, and which required much examination; and he had only heard it read that evening; but he certainly was somewhat surprised at its very sweeping conclusions, that the sanitary improvements which were introduced into barracks in consequence of the efforts of Lord Herbert of Leigh, had not been so effectual in diminishing phthisis as they had commonly been considered to be. It was very difficult to trace exactly the particular results to be attributed to various sanitary improvements. It would be more conclusive if it were possible to select some particular class of soldiers who inhabited continuously particular barracks, such as the Guards, and observe the effects upon them. He thought, however, that they would never be able thoroughly to appreciate what was done by sanitary improvements until the Army Medical Department made a register of each barrack and barrack room separately, stating the diseases which occurred there; because, of course, a barrack had some rooms which were healthy and others which were unhealthy. They were all very much indebted to Dr. Lawson for the immense care and pains he had taken in preparing the paper. When it was carefully studied, some reply might possibly be made to it; but he had not had the opportunity of reading it before the meeting, and it was so very intricate that he would not like to make any detailed criticism upon it at the present time.

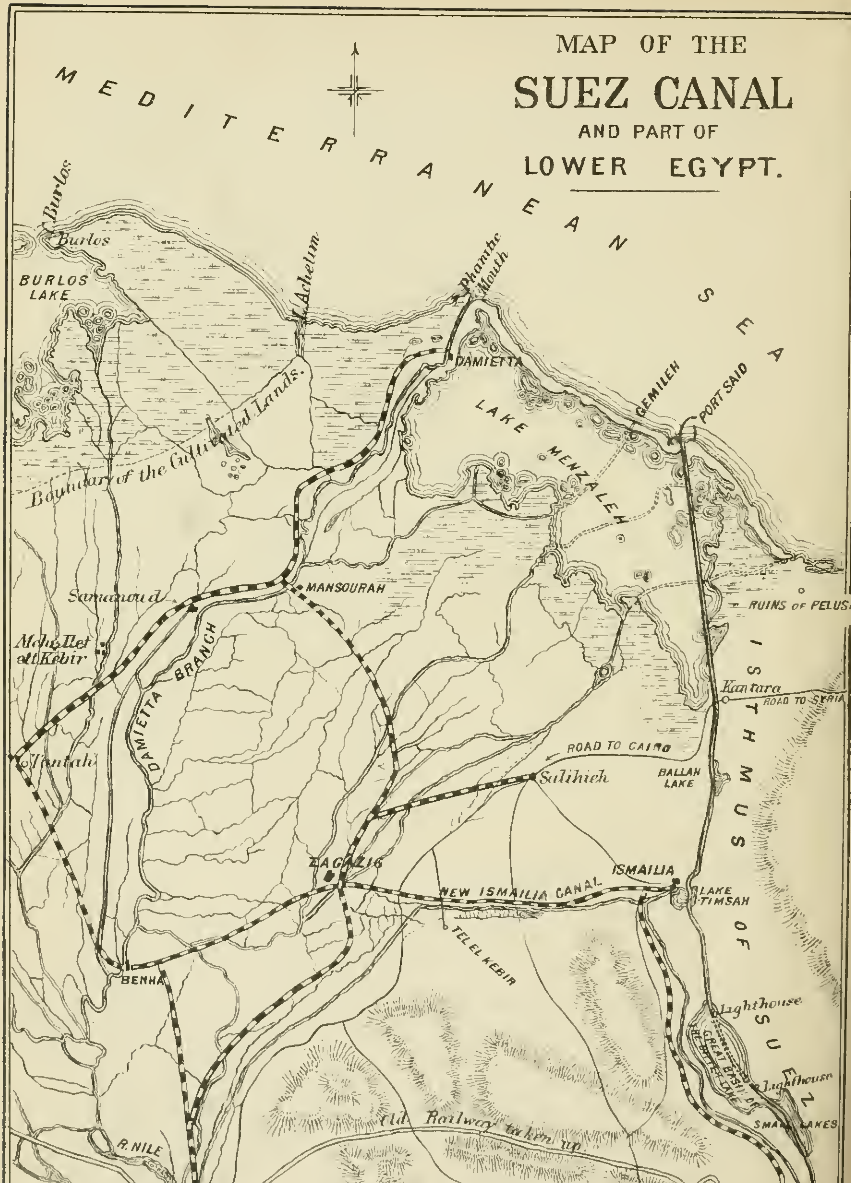
Deputy Surgeon-General Marston, M.D., said that if the deductions and propositions that Dr. Lawson had put forward were true, he had altogether abolished the *raison d'être* of the sanitary and statistical officers of the War Office; while if the propositions were false, the statistical part of the paper went to the wall. It was quite impossible offhand to criticise such a paper, bristling as it did with statistics and ratios. He took the following as very striking evidence of what sanitation in the army had accomplished. At the time of the Crimean War there was a great number of men at Chatham with a form of ophthalmia associated with granular lids, and in Gibraltar and Malta he saw the same thing; and he came to the conclusion that the eyelid of a soldier was an extremely delicate test of the hygienic condition in which he lived. It was hardly conceivable that flannel shirts should have any effect upon ophthalmia. This disease, which had in the past caused an enormous amount of inefficiency and invaliding, had been practically eradicated by increased space and ventilation in barracks. It occurred to him to mention too that in 1860 the ventilation of ironclads was extremely imperfect, and there was an outbreak of pulmonary disease on board the ironclads at Malta at that time that might well be accounted for in that way. In Afghanistan too he found that if the men lived in solid huts and hospitals which were overcrowded, they became peculiarly liable to pulmonary disease, so much so that they were better when living in the open air, though the climate was extremely cold. Medical officers even came to the conclusion that pneumonia was to a certain extent infectious, because healthy men who attended to their sick comrades were attacked by the disease out of all proportion to the others. His explanation was that the men rendered themselves much more vulnerable by living in confined and heated atmospheres, and then going out and exposing themselves to the cold, rather than that the prevalence of the disease was attributable to infection. With regard to the influence of ventilation on epidemic diseases, he might mention a fact in connection with small pox. In Jamaica there had recently occurred 2,217 cases of small pox, divided between an urban population at Kingston and a rural population. In the former case the mortality was 17·5, and in the latter 7·3 per cent. of those attacked. The same effect was noticeable in the case of cholera. In a cantonment in Bengal the British troops were affected as a rule out of proportion to the native troops, who were much more spread out, and the officers were somewhere between the two; but when on service in the field all classes were equally affected; and if, as was done years ago, the native troops were conveyed up the Ganges and crowded together in flat bottomed boats, they died of cholera in a much greater proportion than British soldiers in cantonments. Even if the results were due only to the contagious nature of the disease, the nearer the units were to one another the greater the likelihood of any contagion spreading. The evils of overcrowding were in a geometrical ratio to the numbers breathing a common atmosphere under one roof; in other words, one man with 200 or 300 cubic feet of air would be in less danger than if he was one of fifty men with 500 or even 1,000 cubic feet each. Fifty years ago the statistical method was first applied to the army. The mortality was then 17 per 1,000, while in the Guards it was 20; at the present time it was about 5 per 1,000. He was aware that a great deal of hasty generalisation and exaggeration had been indulged in with regard to sanitation; but everybody knew that if people had better houses, air, food, and clothing, their health and strength improved, and their liability to disease diminished. Everything which favourably affected the environment of people was in reality sanitation, and a great deal had undoubtedly been done in that direction in the army.

Dr. W. H. Lloyd, R.N., said that in the navy the death-rate from phthisis had considerably gone down during the period referred to in the paper. Though of late years great changes had taken place with regard to ships, ventilation had, as far as possible under the circumstances, kept pace with them.

Dr. Walter Dickson, R.N., expressed his admiration of the great industry shown by Inspector-General Lawson in his most valuable paper. He himself was connected with the navy for twenty-one years, and phthisis was then undoubtedly prevalent among seamen serving in England, but when they were at sea abroad, the fatality among them was very little as compared with the civil population of this country. Sailors had a great immunity from pulmonary diseases. He had had great experience of the tropics, and for many years he saw very little of phthisis, but in a civilian force of about 1,000 men in London of whom he had had charge for the last twenty-five years, the deaths from phthisis averaged 4 per annum, or 33 per cent. of the whole mortality, and at the mean age of 41 years. In that service few of such cases were invalided. But in the army most consumptive patients were invalided at an early stage of their illness, to linger on for months or even years in workhouses and hospitals or in their families till the inevitable end. He therefore thought that the army and navy statistics of death from chronic disease were not to be relied upon. He had no doubt that phthisis had diminished a good deal from the greater care taken in recruiting. Thirty-four inches round the chest was a very high standard, and auscultation was probably more attended to. A great improvement had also taken place in the sanitary condition of the troops; their barracks, food, and clothing were all better than formerly; but more important still was the increased care and facility for occupying and improving their minds. Libraries and rational exercises and amusements contributed greatly to promote the health of the army, and ought to diminish the amount of phthisis just as similar improvements were likely to diminish it among the civil population. He was surprised that Dr. Lawson had omitted to refer to one subject with which he was perhaps more conversant than anyone else, namely, the diminution for a time at least of venereal diseases, which were a very important factor in developing phthisis among young soldiers. Those Contagious Diseases Acts with which Dr. Lawson was so well acquainted, had, he believed, had a considerable share in diminishing the amount of phthisis. Now that the Acts were abolished, it would be found that not only venereal diseases but also phthisis would increase in an astonishing way, both in the army and also among the civil population in those towns left unprotected. The treatment of those diseases even had a very lowering effect, and he was quite convinced that it tended to increase the risks of phthisis among the young men of whom the army was mainly composed, and many of whom had a hereditary predisposition to that most fatal of all diseases.

Mr. LAWSON (in reply) said that Captain Galton seemed to be under the impression that he objected to sanitary measures. He could quite understand that idea was reached in consequence of the frequent change of subjects in the paper interfering with the clear perception of each, but he agreed that ventilation was beneficial to health, and in several places he had pointed out that the recent reduction in the mortality from phthisis was to a large extent due to the better sanitary conditions. Still, though there was more attention paid to the ventilation for a certain period, very little alteration was observed till flannel shirts were adopted, and then there was an immediate change. Dr. Longstaff seemed to think that statistics with regard to the army could not be reliable because there were so many changes in the men, but those changes were taken into consideration, and if they were not to deal with them statistically, farewell to any advance whatever. Dr. Longstaff also seemed to think that there was now a great difference in regard to the strictness with which recruits were selected; but he (Mr. Lawson) had known the army for fifty years and had not seen much change in the class of recruits. The numbers rejected had formed a pretty constant quantity whether the recruits were wanted or not. There might have been some slight changes, but not particularly great ones. Some misapprehension seemed to prevail with regard to invaliding. The men who were invalided for consumption had almost all been under treatment for some time, in most instances for months, by their medical officer, and afterwards they had to go before a board of medical men who examined them and decided on their case. Another point referred to was the uncertainty of the estimate of the number dying after being invalided for consumption. There were only two actual records that he (Mr. Lawson) could put his finger upon, but it should be remembered that if men suffering from confirmed consumption, with a variable amount of lung substance destroyed, were sent into civil life, the number of deaths among them must at all events be about equal to what was found among an equal number of people who contracted phthisis in civil life, and whose cases are equally advanced. Most medical men would agree that his estimate of one half dying under such circumstances was not beyond the reality. With regard to the enormous mortality in former years in the West Indies, there were other points besides ventilation to be taken into account. The men who went there had salt provisions five days a week; they were in places where a great deal of malarial fever prevailed, and from an examination he had made of the returns from 1817 to 1836 for the West Indies forty years ago ("Edinburgh Medical and Surgical Journal," vol. lxxx), it was evident that salt provisions and frequent fever increased the deaths from consumption greatly. These conditions, together with the drinking of rum, to a large extent led to the enormous mortality, and had a much greater effect than the barracks. The barracks in Barbados to which Sir Rawson Rawson had alluded, were built about the beginning of the century, and were not equal to the other barracks since erected there; but men lived in them and enjoyed tolerably good health. They, however, indulged in rum instead of supper, and had to do a great amount of pack drill in the sun. These things combined with fever prepared the way for phthisis. So far from decrying sanitary measures, he was a strong supporter of them, but he differed from Captain Galton as to the degree of beneficial influence attributable to ventilation.

The CHAIRMAN said he was sure they would all join with him in thanking Dr. Lawson for his valuable paper, which had provoked so interesting and profitable a discussion.



MAP OF THE
SUEZ CANAL
AND PART OF
LOWER EGYPT.

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The Statistical Story *of the* Suez Canal.

By Joseph Rabino, Esq.

[Read before the Royal Statistical Society, 14th June, 1887.
Sir Rawson W. Rawson, K.C.M.G., C.B., a Past President in the Chair.]

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I.—*The Importance of the Canal.*

In studying the economical situation of Egypt, we were[1] met at every stage of our inquiry by the cardinal fact that to Nature's great waterway, the Nile, is due not only the prosperity of the land, but even the very existence of its people.

Shakspeare places the idea vividly before us :—

> " . . . . . they take the flow o' the Nile
> By certain scales i' the pyramid ; they know
> By the height, the lowness or the mean, if dearth
> Or foison follow. The higher Nilus swells,
> The more it promises : as it ebbs, the seedsman
> Upon the slime and ooze scatters his grain,
> And shortly comes to harvest."
> *Antony and Cleopatra*, act ii, scene vii.

The external or international importance of Egypt depends at present in a scarcely lesser degree upon that other waterway which we owe to the energy and perseverance of him whom our neighbours with pardonable pride entitle " the great Frenchman."

How great that importance is to us may be imagined from the circumstance that, with the almost unanimous approval of the country, an administration pledged to peace and retrenchment did not hesitate in confronting the risks and sacrifices of war rather than allow the canal to fall into unfriendly hands.

Indeed the question of the canal touches, or is supposed to touch that of our naval supremacy, a point of our national policy which already three centuries back was put forth by Bacon as an indisputable axiom :—

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[1] See paper on the Statistics of Egypt, September, 1884, of this *Journal.*

"But this much is certain," says he; "that he that commands "the sea is at great liberty, and may take as much and as little of "the war as he will; whereas those that be strongest on land "are many times, nevertheless, in great straits. Surely, at this "day, with us of Europe the vantage of strength at sea (which is "one of the principal dowries of the kingdom of Great Britain) "is great; both because most of the kingdoms of Europe are not "merely inland, but girt with the sea most part of their compass; "and because the wealth of both Indies seems, in great part, but "an accessory to the command of the sea."[2]

Nor do other nations overlook the political importance of the canal, which since its construction has been the subject of arduous diplomatic negotiations and the status of which is a problem in every European chancellerie.

M. Renan in his answer to the Academy speech of M. de Lesseps, thus eloquently points to one possible consequence of the construction of the canal:—

"The great saying: 'I come not to bring peace but a sword,' "must often have presented itself to your mind. The isthmus "cut becomes a strait, that is, a battlefield. A single Bosphorus "had hitherto sufficed for the troubles of the world; you have "created a second much more important than the other, for not "only does it unite two portions of inland sea, but it serves as "a channel of communication with all the great oceans of the "globe. In case of naval war it would be the supreme interest, "the point for the occupation of which the whole world would "struggle to be first. You will thus have marked the field of the "great battles of the future."[3]

Of the commercial importance of the canal I shall speak hereafter, believing that I have sufficiently justified my opinion, that some account from a statistical point of view of this great undertaking may fitly find a place in the annals of our Society.

II.—*The Forerunners of the Canal.*

From Suez on the Red Sea to Port Saïd on the Mediterranean the distance as the crow flies is less than 100 miles; about as far as from London to Leicester, and a sharp two hours' run in one of our express trains.[4] A canal cut through this short distance—rendered shorter by the existence of lagoons and deep depressions throughout its length—brings the Mediterranean countries 12,000 miles nearer by sea to the producing regions of the East, and

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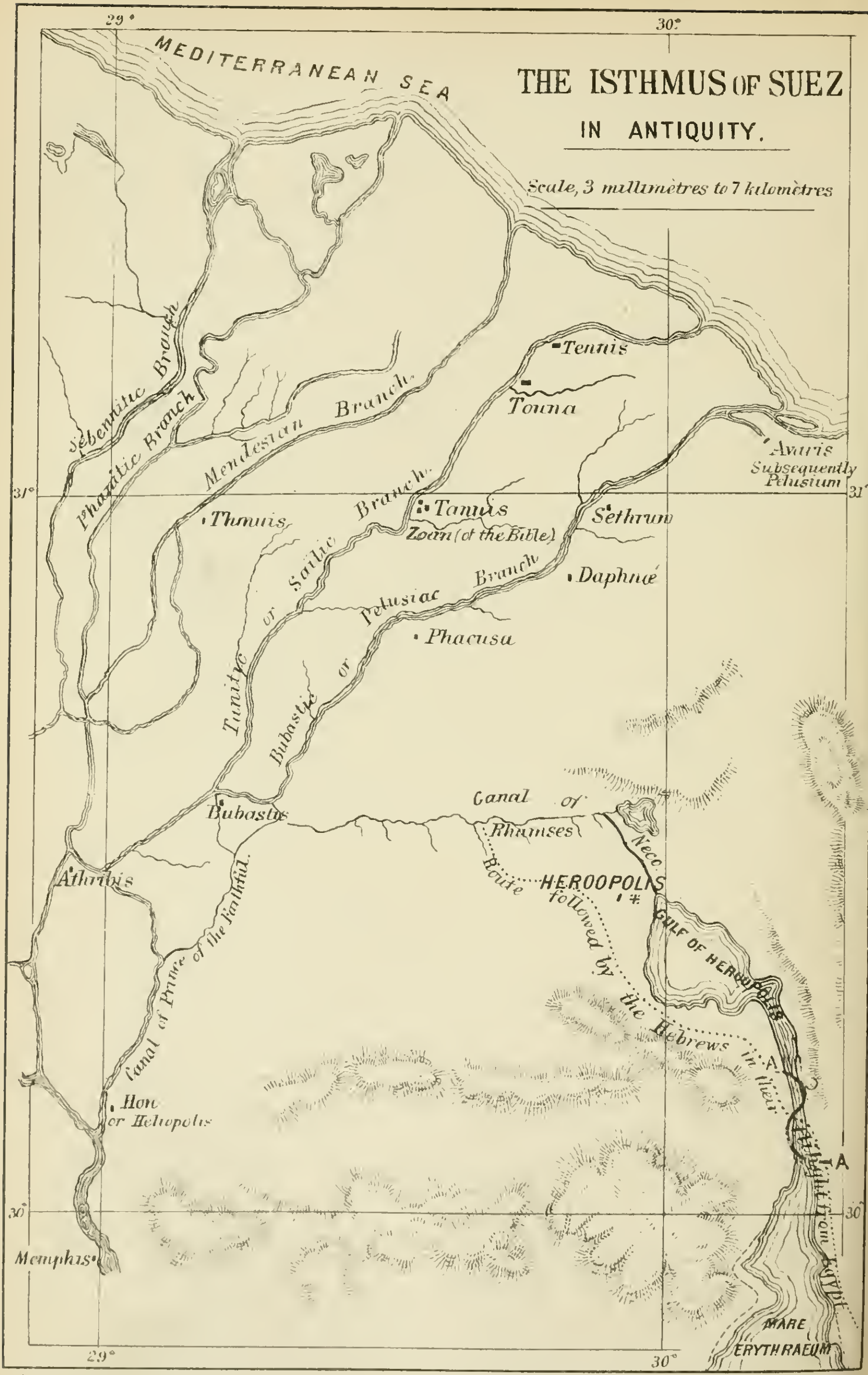
[2] "Of the true greatness of kingdoms and estates."—Bacon's "Essays."

[3] "Le Temps," 24th April, 1885.

[4] King's Cross to Grantham, 105¼ miles, 2 h. 4 m. (1883). St. Pancras to Leicester, 99¼ miles, 2 h. 7 m. (1883).—*Statistical Journal*, June, 1884.



AA.—This passage became choked up in very ancient times, the Gulf of Heroopolis being thus converted into a lake. Artificial communication was at various times established by a canal AA (frequently destroyed by time) called the Canal of Darius, of the Pharaohs and of Trajan. This finally disappeared in the eighth century.

gives them access to markets prized and coveted since commerce first began.

The wonder is then, not that a man of genius and enterprise should have been found in this nineteenth century of ours to plan and carry out the canal scheme, but that such a canal should not have been made and maintained centuries since.

And indeed nature first showed the way: the low level of the isthmus, the salt marshes and deposits, the shells and fossils identical with existing species in the Red Sea, clearly point to the conclusion that the belief of the priests of ancient Egypt, in the former union of the Mediterranean and the Red Sea, was either a sound scientific hypothesis, or the half effaced recollections of an historical fact.[5]

Herodotus[6] tells us that from Mount Casius—identified as a sandy headland on the Mediterranean—to the Gulf of Heroopolis the distance was 1,000 stades. This would bring the Red Sea nearly 40 miles further north than at the present day, and the site now occupied by the bitter lakes, perhaps even by Lake Timsah, must have been its extreme limit.

A glance at the accompanying sketch map will make this clear. It will be seen that between the Gulf of Heroopolis (now bitter lakes) and the Red Sea a narrow channel connected the waters; this channel seems to have been closed by an upheaval of the soil, which at the spot now called Chalouf presents hard rock of the tertiary formation.[7]

The first attempt at a canal is attributed to Neco the son of Psammiticus,[8] who connected the Gulf of Heroopolis with the Pelusiac branch of the Nile at Bubastis (Zagazig). At the southern end of the gulf (bitter lakes), the channel being choked up, goods were landed and carried onward to the Red Sea.

Darius is said to have completed Neco's work by digging a canal along the line of the ancient junction of the Gulf of Heroopolis with the Red Sea.

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[5] "There is evidence that the country round the northern end of the Red Sea "has been raised above its former level within the last three thousand years. "Caverns are found in the cliffs of the Red Sea and in those more inland on the "Arabian coast, and the whole desert from Suez to Cairo is covered with "abundance of shells similar to those now living in the Red Sea, which was "probably joined to the Mediterranean at a very recent period."—Somerville's "Physical Geography," chap. vii.

[6] Book ii, secs. 159 and 160. Cary's translation.

[7] It is interesting to remark that the caravan track to Mecca crosses the isthmus some miles south of this point, and there seems every probability that it is identical with the route followed by the Israelites in their exodus from Egypt. A strong east wind would have enabled them to cross the sea bed dryshod, whilst a rapidly rising tide would within a short time have covered the passage with 6 feet of water. The report of the Egypt Exploration Fund treats this question.

[8] Herodotus, book ii, secs. 159 and 160. Cary's translation.

Centuries later these canals having become obstructed and useless, the Romans restored them, giving the whole the name of Trajan's canal. This likewise seems to have been in existence but a short time, and it is a controverted point whether Cleopatra's galleys were able or not to pass through it.

The last attempt at a passage from the Red Sea to the Nile was made by Amru ibn el Aas, the general of the Caliph Omar, who conquered Egypt in the seventh century. A great famine reigning in Mecca, Amru was ordered to take measures for forwarding thenceforth grain from Egypt by the quickest route. "He dug a "canal of communication from the Nile to the Red Sea, a distance "of 80 miles, by which provisions might be conveyed to the "Arabian shores. This canal had been commenced by Trajan the "Roman emperor."[9]

The Pelusiac arm of the Nile being no longer navigable, he however joined his canal to the river at Cairo instead of Bubastis or Zagazig. This occurred in the year of the great mortality A.D. 639, and no later than in 767 the Caliph Abou Giaffar el Mansour, to prevent food being sent to the insurgents of Medina, caused the canal to be destroyed by filling up the junction of Neco's canal and the bitter lakes. The winds and the sands did the rest, and produced the ridge of Serapeum, which probably covers the site of the ancient city of Heroopolis.

From this period to the beginning of the present century, save for half hearted projects of the Venetians, and later of the Porte itself, we hear no more of the question till Napoleon invaded Egypt, and ordered an immediate survey of the isthmus with a view to the establishment of a maritime canal.

The chief engineer of the survey, M. Lépère, in his remarkable report on the subject,[10] offers a solution of the problem differing very little from those of the ancients, whose principal objections to a direct canal he frankly adopts. He joins his canal to the Nile, and completes it by a canal from Rahmanieh to Alexandria—almost identical with the present Mahmoudieh Canal, which supplies Egypt's northern seaport with fresh water.

The salient point of the various canals we have mentioned is that they all evade the problem of a direct passage from sea to sea. Putting on one side the fact that the object originally sought was rather a trade between the interior of Egypt and Arabia than a through passage with the north, the real obstacles were the following, which have been proved by experience to be unfounded:—

First, the theory that the Red Sea is at a higher level than the

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[9] Washington Irving's "Successors of Mahomet."

[10] "Memoire sur le Canal des deux Mers." "Description de l'Egypte," vol. xi.

Mediterranean, and to bring its waters inland would be to submerge a great part of the country, and injure the Nile water. This error was perpetuated by Napoleon's engineers, as M. Lépère declared the result of his experiments to be that the Red Sea level was 30 feet above the Mediterranean.[11] In 1847 only was the matter set finally at rest by a commission composed of Signor Nigrelli, Mr. Robert Stephenson, and M. Talabot, on the part of the Austrian, English, and French Governments, who reported that there was no difference of level between the two seas.

Second, the fear of the dangers of navigation in the Red Sea, a fear probably born of the primitive means at the disposal of the Arabs during the last few centuries: they had not even the mariner's compass.

Third, the theory that the prevalence of westerly winds on the south Mediterranean coast, and the constantly increasing deposits of the Nile, would render the establishment of a port impracticable.[12] This objection was removed by the observations of the officers of the corvette "Yand Becker," which, by order of the French government, remained at anchor during the winter months of 1857 three miles off the coast.

These objections, which now appear so futile, were sufficiently serious to delay any attempt at a maritime canal till M. de Lesseps took the matter in hand, and settled the difficulty somewhat in the fashion of Columbus with the egg.

Having thus passed in review the different attempts at a waterway through Egypt, we must not omit some mention of our countryman, Lieutenant Waghorn, the real pioneer of our short cut to India.

This remarkable man made it the task of his life to establish and improve the route to India by the isthmus. Undeterred by the scoffs of opponents, and the steady official discouragement of the East Indian and Home authorities, he, by his personal and almost unaided efforts, started steamers from Alexandria to the Nile, established stations and hotels in the desert from Cairo to

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[11] "It is therefore certain from the examination of these results, that the "waters of the Red Sea are susceptible of covering the lands of the Delta, and "that the fears of this submersion among the ancients were only too well founded "in those remote times when the Delta and the bed itself of the Nile were incontestably less elevated."—"Description de l'Egypte," vol. xi.

[12] "It is but too certain that a permanent establishment along any part of the "sea front of the Delta could with difficulty be made, as this coast is an alluvial "soil, which rises and increases constantly through the new deposits of mud accumulated there by the Nile in its rises, and that the access of this shore is always "dangerous; the wrecks which are but too frequent there justify sufficiently the "fear of shoals not less to be dreaded by sailors than the bogház or mouths of the "Nile."—Idem.

Suez, and showed the practicability of his theory by taking for a long time personal charge of the mails, till, on the 31st October, 1845, he had the satisfaction of bringing letters into Bombay only thirty days old. In his first attempts, with every circumstance against him, he was nevertheless never beaten in his race against time. So energetic was he that on one occasion, having missed the Bombay steamer, he embarked in an open boat, without chart or compass, to sail along 600 miles of the Red Sea from Suez to Jeddah, and in six days and a half accomplished the feat.

The impression that his wonderful activity made upon his contemporaries is thus humorously hit off by Thackeray: "The "bells are ringing prodigiously; and Lieutenant Waghorn is "bouncing in and out of the courtyard full of business. He only "left Bombay yesterday morning, was seen in the Red Sea on "Tuesday, is engaged to dinner this afternoon in the Regent's "Park, and (as it is about two minutes since I saw him in the "courtyard) I make no doubt he is by this time at Alexandria or "at Malta, say, perhaps at both. *Il en est capable.* If any man "can be at two places at once (which I don't believe or deny) "Waghorn is he."[13]

The Suez Canal Company have gracefully acknowledged their obligations to Lieutenant Waghorn by erecting a bust to his memory on the Peninsular and Oriental quay at Suez, which is named after him.

III.—*The Digging of the Canal.*

Said Pacha ascended the vice-regal throne in 1854, and M. de Lesseps, who was on terms of intimacy with this prince, profited by this circumstance to bring forward his plan for a ship canal across the isthmus. An Act of concession, dated the 30th of November of that year, was granted him, which was followed on the 5th of January, 1856, by a second Act in amplification and completion of the first. To this Act were annexed the articles of association of a company for working the concession, and these two documents form the Charter of the Suez Canal Company.

Based on the French railway concessions,[14] the company's charter gives it a ninety-nine years' lease (to count from the opening of the canal) for digging and working:—

1°. A maritime canal from sea to sea, with a northern port on the Mediterranean, and an inland port at Lake Timsah, and improving Suez harbour.

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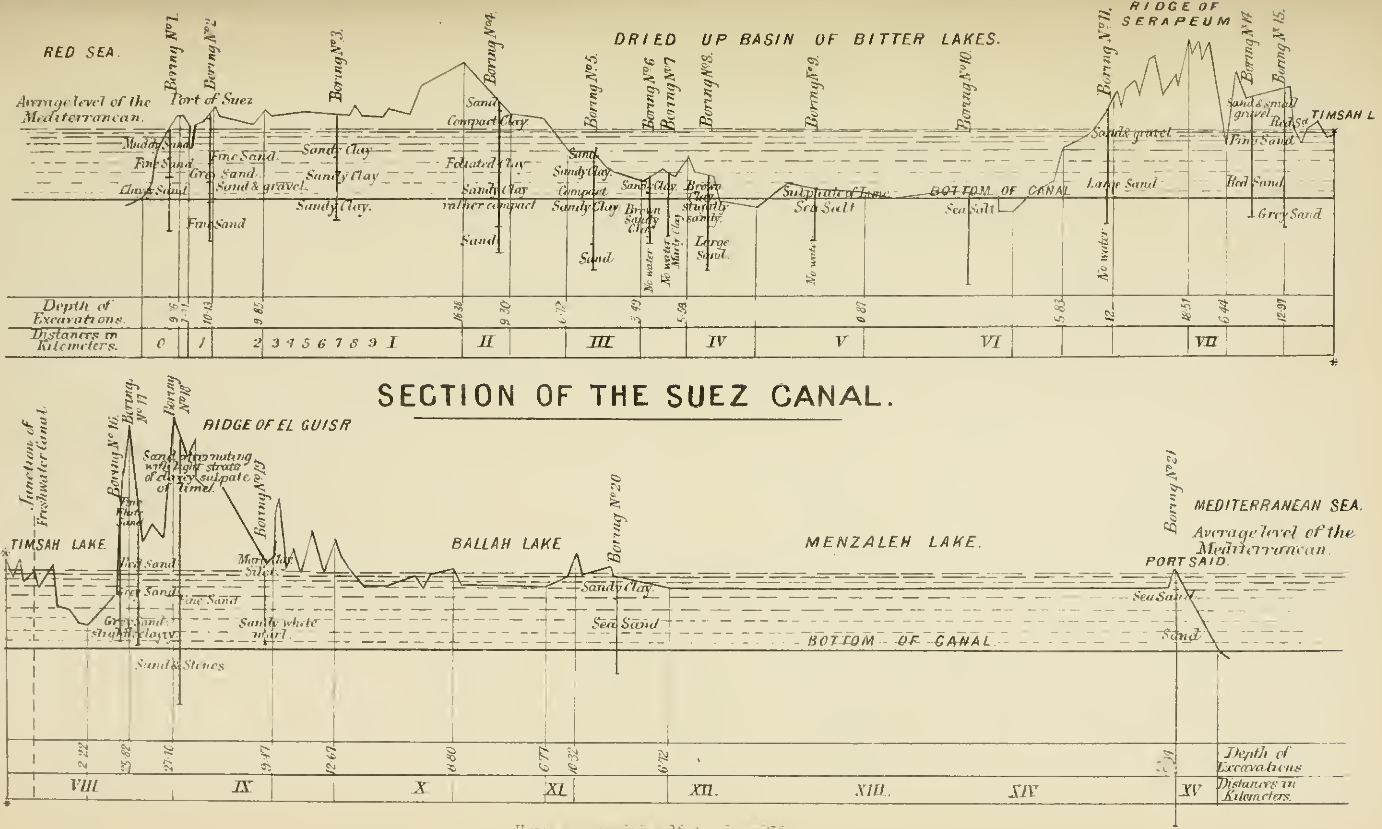
[13] "A Journey from Cornhill to Cairo."

[14] "Percement de l'Isthme de Suez Actes Constitutifs," &c., &c., published by M. F. de Lesseps in the name of the Board of Directors. Paris, 1866.



SECTION OF THE SUEZ CANAL.

Harrison [illegible] Lith. S. Martins Lane

2°. A freshwater canal from Cairo to Lake Timsah, with branches north and south supplying the two canal seaports.

For the carrying out of this undertaking the government granted the company:—

1°. The lands necessary for the company's buildings, offices, and works on the canal, gratuitously, and free from taxation.

2°. The lands, not private property, brought under cultivation by the construction of the fresh water canal, gratuitously, and free from taxation for ten years.

3°. The right to charge landowners for the use of the water of the fresh water canal, which, on the other hand, it was bound to supply.

4°. All mines found on the company's lands, and the right to extract from all State mines and quarries, free of cost, royalty, or tax, the stone, plaster, or other materials required for the construction of the canal and ports.

5°. Freedom from duties on its imports.

The canal and works were to be finished, save for unavoidable delays, within six years. Native labour was to be employed to the extent of four-fifths of the whole, a special convention settling the terms on which the Government supplied or authorised such labour.

The tolls were fixed at 10 frs. per "ton of capacity" (an expression which gave rise to difficulties subsequently), and 10 frs. for each passenger.[15]

The company was declared to be Egyptian, and subject therefore to the local jurisdiction.

The profits were to be thus divided, after payment of 5 per cent. interest to shareholders, and 5 per cent. to reserve fund:—

15	per cent. to the	Egyptian Government.
10	,,	founders.
75	,,	shareholders, directors, and staff.

At the expiration of the ninety-nine years the canal and appurtenances were to revert to the Egyptian Government, the company retaining its plant (*matériel*) and stores.

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[15] The exact order of charges is as follows:—

1°. Maintenance and charges of society.

2°. Interest and sinking fund of loans.

3°. Five per cent. to shareholders (the interest on redeemed shares to sinking fund).

4°. Four hundredths per cent. on capital to sinking fund.

5°. Reserve fund for unforeseen expenses, and finally dividends.

Armed with these powers M. de Lesseps started his Canal Company, which was incorporated in December, 1858.

The capital was fixed at 200 million frs., or 8 million £, divided into 40 thousand shares of 500 frs., or 20*l.* Interest at the rate of 5 per cent. per annum was to be paid to the shareholders, and, the concession being terminable in ninety-nine years, a sinking fund of 0·04 per cent. (say four-hundredths per cent.) applicable to the share capital was decided upon, to be a first charge on the profits available for distribution.

On 25th April, 1859, the first sod of the canal was turned; but two years were spent in preparations, survey of the track, organisation of the work gangs, building of storehouses, purchase of dredgers, machinery, and tools, and accumulation of stores, timber, iron, lime, cement, provisions, &c., &c.

The company at first decided to entrust M. Hardon with the carrying out of the works, receiving 60 per cent. of the profits on the prices fixed by the original estimates of the International Commission, and reserving to itself merely the general superintendence, the drawing up of the plans, and the furnishing of machinery and stores.

This method was found not to work well, and the agreement with M. Hardon was subsequently cancelled, an indemnity being paid to him of 72,000*l.*

The company next undertook the works for its own account, but eventually entered into agreements with four contracting firms, who engaged to carry out portions of the works at the following prices:—

Contracts for Works on Suez Canal.

Dussaud frères, Marseilles	Aiton, Glasgow.	Couvreux, Paris.	Borel and Levalley, Paris.
20*th October*, 1863.	13*th January*, 1864.	1*st October*, 1863.	1*st April*, 1864.
250,000 blocks of artificial stone of 1 cubic metre each (35⅓ cubic feet) and weighing 20 tons, @ 40 frs. each 10,000,000 frs. 400,000*l.*	21,700,000 cubic metres of excavations @ 1·35 fr. The plant ceded to the contractor by the company brings the price up to 1·60 fr. 34,720,000 frs. 1,388,800*l.* Contract afterwards cancelled, and transferred to Borel and Levalley	9,000,000 cubic metres of excavations @ 1·60 fr. 14,000,000 frs. 560,000*l.* Enlargement and deepening of the great El Guisr trench, over 8 miles long	24,500,000 cubic metres of excavations @ 2·28 frs. 56,000,000 frs. 2,240,000*l.* Continuation and completion of 53 miles of cutting from Lake Timsah to Red Sea. *Second contract.* Transfer of Aiton's contract

The most urgent of the tasks to be attempted were the settlement of Port Said and creation of the port, the freshwater canal for supplying the labourers' wants throughout the isthmus, and the trench through the ridge of El Guisr, the first serious obstacle on the line of the canal.

The further progress of the works would require a long and detailed description, which might be found tedious, and would certainly exceed the limits of this paper; I have therefore drawn up the following table[16] in diary form, and with almost telegraphic laconism, which I hope will be found to give a sufficiently clear, though necessarily a rough and imperfect idea of the construction of the canal.

Progress of the Works.

1861.

PORT SAID.—2,000 inhabitants; houses for Europeans; Arab village; steam sawmills; forges and workshops for adjusting and fitting machinery; water condensers erected; dock basins; quarries of Mex worked. Tonnage of the port to 15th April—vessels, 135; tons, 29,000.

MARITIME CANAL—*General Works.*—Wells dug along line of works. In the summer of 1860, 1,200 natives opened a cutting from Lake Maxamah, bringing Nile water to Bir Abou Ballah, whence hydraulic apparatus carry it to El Ferdane at the foot of El Guisr.

North of Lake Timsah.—Sheds for 10,000 labourers, 13,800 wheelbarrows, 20,000 planks; steam sawmills.

South of Lake Timsah.—Nil.

FRESHWATER CANAL AND WATER SUPPLY.—A canal joining the Nile to Lake Timsah planned (*viâ* Zagazig); 3,000 labourers set to work.

1861-62.

PORT SAID.—Commencement of Eastern Mole; construction of landing stage, 70 yards by 22, in 16 feet of water, and about a mile from shore; service canal; arsenal dock at this period 160 yards by 135; depth, 5 feet. Tonnage of the port, March, 1861, to 1st March, 1862—vessels, 260; tons, 40,000.

MARITIME CANAL—*General Works.*—Buildings erected, square yards, 44,500; seven Arab villages (gourbis) 14,750; 24 dredgers ordered in Europe from various makers arrived at Port Said.

North of Lake Timsah.—Sea water cutting, 4 feet draught, 24 feet wide at water line, continued from Kantara to El Ferdane, allowing of transport to foot of El Guisr.

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[16] Compiled from "L'Isthme de Suez, 1854-69, avec cartes et pièces justifi-"catives," par H. Silvestre. Paris, 1869. A clever and useful little book.

South of Lake Timsah.—Nil.

FRESHWATER CANAL AND WATER SUPPLY.—Canal brought to Lake Timsah, 21¾ miles; width, water line, 41 feet, bottom 25 feet.

1862-63.

PORT SAID.—Four dredgers, with cranes at work.

MARITIME CANAL—*General Works.*—Second sea water cutting for service of works, 50 feet wide, 3 to 6 feet deep, from Port Said to El Ferdane. Buildings along isthmus: March, 1862, 56,500 square yards; April, 1863, 96,500 square yards.

North of Lake Timsah.—18,000 men at work since November, 1862; trench 50 feet by 4 to 6 feet deep, connecting Mediterranean and Lake Timsah; 4,350,000 cubic metres (153,600,000 cubic feet) at 0·68 frs. the cubic metre, being within the original estimate, despite the labour of carrying the earth up an incline of 70 feet.

South of Lake Timsah.—From Lake Timsah to Toussoum plateau, canal 190 feet wide and 6 feet below the Mediterranean level, 21,200,000 cubic feet; 21 dredgers at work; 3 dredgers nearly ready, raising each over 353,000 cubic feet per month; 20 other dredgers to be established, raising each 1,050,000 cubic feet.

FRESHWATER CANAL AND WATER SUPPLY.—Canal from Nefiche to Suez begun; 24 miles finished, 64 feet wide at water line, 26 feet at bottom, 6 feet draught of water; cubic feet about 50,000,000.

1863-64.

PORT SAID.—Large tract of land reclaimed, area 142,000 yards, to establish works of Compagnie des forges et chantiers de la Méditerranée and those of E. Gouin of Paris; 20 new dredgers, with barges and accessories fitted up; landing stage lengthened 330 feet; about 600 feet quays finished; canal Cheikh Carpouti, 2,000 feet (subsequently 3,300), connecting port with shore of lake and Damietta, and assuring draught of water. Tonnage of port, year 1863, vessels, 295; tons, 48,759.

MARITIME CANAL—*General Works.*—Total area built over, 128,000 square yards.

North of Lake Timsah.—Excavations from Port Said to El Ferdane, 43,000,000 cubic feet; excavation of gypseous stone along Lake Ballah, 4,500,000 cubic feet.

South of Lake Timsah.—Maritime canal lengthened 4 miles; between Timsah and Serapeum excavations 7,600,000 cubic feet; two cuttings, the one to the Southwater Canal, Ismailia, and the second, east of Lake Timsah to a stone quarry at the Plateau of Hyenas.

Freshwater Canal and Water Supply.—Canal completed from Nefiche to the sea over 55 miles; had taken thirteen months; 118,000,000 cubic feet.

1864.

Port Said.—530,000 cubic feet of stone taken from the quarries at Mex (Alexandria), for the Port Said quays and embankments; Dussaud frères establish their plant for manufacture and submersion of artificial stone for moles. Tonnage of port, January—July, 1864, vessels, 124; tons, 35,220.

Maritime Canal—*General Works.*—Telegraph system finished; 13,000 natives at work first three months only; Borel and Levalley, who afterwards carried out such vast operations, employed in planning their work.

North of Lake Timsah.—Port Said to Timsah; excavation of natives, 23,000,000 cubic feet; Aiton's excavations (with company's plant) Port Said, 1,050,000 cubic feet; in the canal, 8,100,000 cubic feet; Couvreux' excavation, 2,200,000, using 2 excavators, 4 miles of railway, 4 engines, and 30 trucks.

South of Lake Timsah.—South of Chalouf; excavation of natives, 48,000,000 cubic feet; transverse canal to Serapeum, 3,200,000 cubic feet; transverse canal to Chalouf, 425,000 cubic feet.

Freshwater Canal and Water Supply.—Junction at Ismailia, 1,300,000 cubic feet; water supplied, Port Said, from 10th April; reservoir, plateau of El Guisr, 110,000 gallons; reservoir, Port Said, 154,000 gallons.

1864-66.

Port Said.—Plan of harbour modified; instead of two parallel moles, 1,300 feet apart, eastern mole started from shore at a distance of 4,500 feet from western mole, gradually approaching to 1,300 feet, and thus forming a fine port; pass of Port Said 200 to 300 feet wide, 16 feet deep; entry of basin 600 feet wide, 16 to 20 feet deep. Tonnage of port, 15th July, 1865, to 15th June, 1866; vessels, 595; tons, 108,539.

Maritime Canal—*General Works.*—Borel and Levalley; 32 long trough dredgers at work along 35 miles of canal; native contingents abolished, May, 1864, replaced with almost no delay; in 1866, 7,954 European labourers; 10,806 Africans and Asiatics, viz., Arabs, Syrians, &c.

North of Lake Timsah.—Canal from Port Said to Timsah widened to 325 feet, thus allowing formation of strands for the protection of banks from passing vessels, and economising stone embankments; El Guisr ridge trench widened and deepened by Couvreux, 6 miles, by Gioja, on account of company.

South of Lake Timsah.—Timsah to Suez; first excavations by hand, afterwards by dredgers from Timsah to south of Toussoum; from Toussoum to Bitter Lakes trench opened 5 miles; rock of Chalouf removed, 1,100 feet long; earth, 3,200,000 cubic feet; stone, 1,000,000 cubic feet.

Freshwater Canal and Water Supply.—Viceroy set 80.000 men to work at canal from Cairo to Wady; 5th October, 1865, 70,000,000 cubic feet; subsequently, 105,000,000; leaving 70,000,000; allowing of the passage of Nile water in all seasons; the company had finished 30,750,000 cubic feet, placed to its charge by the imperial award.

1866-67.

Port Said.—Western mole, 2,350 yards out of 2,700, of which 2,050 above water and 300 to water edge, to an extreme depth of 28½ feet; eastern mole, over 1,000 yards out of 1,950, depth of about 18 feet; out of 250,000 blocks of artificial stone, 115,000 submerged, each of over 350 cubic feet and weighing 20 tons; pass of outer port enlarged from 75 yards to 110 at bottom, 2,000 yards long, 21 to 22 feet deep; dredging of dock basin, 62 acres out of 76; Basin de Commerce finished, 10 acres, depth 36 to 37 feet. Tonnage of port 15th June, 1866, to 1st June, 1867; vessels 880; tons, 146,107.

Maritime Canal—*General Works.*—Plant for transport and transit completed and delivered. 1867. First half year's receipts, 20,800*l.*; tons carried, 9,506; passengers, 20,132; steam power used on canal, 17,768 h.p.; coal, tons per month, 12,219; inhabitants of isthmus, 25,000, of whom 6,388 native labourers, 6,990 European labourers; dredging in one year, 353.000,000 cubic feet.

North of Lake Timsah.—Since 1866 long trough dredgers in use from Port Said to Timsah, depth 20 to 22 feet, inclination of banks 45°; Port Said to El Guisr, 110 yards breadth. Borel and Levalley's contract—1st year, 13,000,000 cubic feet; 2nd year, 51,000,000 cubic feet. From 15th March, 1866, to 1867, total cube of two sections, Cape and Lake Ballah = 42,000,000 cubic feet. Couvreux' contract—El Ferdane to El Guisr, to 1st June, 122,500,000 cubic feet, out of 146,000,000. Lake Timsah filled to sea level and a dredger at work.

South of Lake Timsah.—Timsah to Serapeum, 110 yards width, cutting began at Serapeum plateau; 8 large dredgers in water 20 feet above sea level, and doing 900 to 1,000 cubic feet. Bitter Lakes—Excavation by hand labour of large lake to Chalouf and of small lake to Suez; in January, 1876, dredgers on the plateau Chalouf to Suez.

Suez.—Four large dredgers at work in roadstead.

1867-68.

Port Said.—Western mole, 2,350 yards completed and 100 yards to water edge; eastern mole, 1,830 yards, of which 280 embanked with stone from Plateau of Hyenas; Dussaud frères had submerged all but 57,802 blocks of stone, of which 33,031 had yet to be made; Borel and Levalley had dredged in passes and basin 123,000,000 cubic feet, out of 165,000,000 cubic feet.

Maritime Canal—*General Works.*—On the 15th April there still remained to be excavated a total of over 1,200,000,000 cubic feet. Monthly work:—

	Cubic feet.
8 elevator dredgers	4,300,000
30 dredgers, with barges	21,000,000
22 long trough dredgers	31,000,000
	56,300,000
22 inclined planes	4,700,000
7,500 labourers	13,500,000
	74,500,000

North of Lake Timsah.—Couvreux' contract—Port Said to Timsah, 5½ miles, 156,000,000 cubic feet; at El Ferdane, 3¾ miles, 34,000,000 cubic feet; finished six months in advance of contract. Borel and Levalley—Dredgings, 306,000,000 cubic feet out of 911,000,000; monthly work, January, 1,700,000, April, 2,400,000. At work—16 long trough dredgers, 6 elevator dredgers, 9 dredgers, with barges.

South of Lake Timsah.—From Lake Timsah to Bitter Lakes, 160,000,000 out of 300,000,000 cubic feet; 11 dredgers at work, doing each 882,500 cubic feet per month; excavated by hand, 24,500,000 cubic feet, out of 45,600,000; excavations by hand going on over 21 miles, from Bitter Lakes to Chalouf. There remained to be finished 248,000,000 cubic feet.

Suez.—Borel and Levalley; dikes and embankments in roadstead, by 15th April, 1,600,000 cubic feet of stone submerged out of 2,300,000.

1868-69.

Moles finished at the beginning of 1869. Pass in 1868, 21 to 23 feet deep; now, 29 to 30 feet deep.

Maritime Canal—*General Works.*—From Port Said to Bitter Lakes canal open to its full width and length; dredgers at work completing depth.

North of Lake Timsah.—Nil.

South of Lake Timsah.—Flooding of Bitter Lakes commenced in March, 1869; Bitter Lakes to Red Sea, 22 miles by hand, 3 miles by dredgers.

Suez.—Suez pass finished; breakwater, over 1,600 yards of stonework.

It will be noticed that in 1864 the native contingents, which in accordance with the Act of Concession were to be employed almost exclusively on the works, were finally withdrawn.

Independently of the objections against forced labour, it is indisputable that the employment of 18 to 20,000 fellaheen on the Suez Canal—added to the numbers journeying to and from the canal to relieve one another—was a serious tax on the resources of a country like Egypt, dependent entirely on agriculture for existence, and having immense labour requirements to keep up its irrigation system, natural and artificial.

The Egyptian Government profited by the occasion to claim the abrogation of certain other portions of the acts of concession. The difference was submitted to the Emperor Napoleon, whose award was as follows:—[17]

	frs.		£
1. Corvée labour to cease, the Egyptian Government paying the company an indemnity of	38,000,000	=	1,520,000
2. The Egyptian Government to regain possession of the freshwater canal from Cairo to Lake Timsah (the company retaining the right of use), on payment of an indemnity for work done and to be done, of	10,000,000	,,	400,000
And as compensation for navigation dues	6,000,000	,,	240,000
3. The Egyptian Government to regain possession of 60,000 hectares[18] (say 150,000 acres) of land brought under cultivation by the creation of the freshwater canal, on payment of an indemnity of 500 frs. (20*l.*) per hectare	30,000,000	,,	1,200,000
	84,000,000	=	3,360,000

The area of lands necessary for the wants of the company was determined at 10,264 hectares or over 25,000 acres on the maritime canal, and 9,600 hectares or over 24,000 acres on the freshwater canal.

In 1869, on the payment of 30 million frs. = 1,200,000*l.* represented by the coupons up to 1894 on the 176,602 shares which the Egyptian Government had acquired as an ordinary subscriber, the State recovered possession of its custom dues on the company's imports, of its tolls on the freshwater canal, of the postal telegraph services, of the fishery rights on canal and lakes, of the hospitals on the isthmus with their appurtenances, of sundry premises along the canal, of the quarries and port of Mex with their plant, of the storehouses of Boulac and Damietta, and of the right to half the proceeds of any of the lands on the maritime canal which the company might put on sale.

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[17] "Percement de l'Isthme de Suez, Actes Constitutifs," &c., &c., published by M. F. de Lesseps in the name of the Board of Directors. Sixth series. Paris, 1866.

[18] The Turkish Government, with a foresight of which England now profits, urged the necessity of the retrocession of lands, to prevent the company gaining eventually too great political power or local influence.

Finally, by a further payment of 10 million frs. = 400,000*l.*, the State regained possession of the domain of the Wady, the valley traversed by the freshwater canal—the land of Goshen of the Bible, according to some Egyptologists.

On the 17th November, 1869, M. de Lesseps had the satisfaction to see the end of his fifteen years' struggle. A fleet headed by the yacht of the empress of the French passed through the canal from the Mediterranean to the Red Sea. The problem of so many centuries was at last solved.

The isthmus which in 1859 counted 150 inhabitants, of whom 25 were Europeans, now contains a permanent population of over 21,000 (7,000 Europeans), of whom 17,000 in Port Said and stations and the rest at Ismailia, to say nothing of Suez, formerly an Arab village, now a town of 11,000 inhabitants, thanks to the canal traffic and the company's water supply.

Two towns have therefore been created—built is hardly the word for desert sites wanting everything—and a Mediterranean harbour established. This latter with moles and quays of a total length of over 3 miles, of an outer port of over 4,000 acres, a port of 130 acres, a channel of 10 acres, and docks covering 120 acres.

As to the canal itself, the gigantic nature of the works may be gathered from the fact that the total cube of the excavating was 75 million metres, or nearly 2,649 millions of cubic feet. As points of comparison I may remark that the dredgings at—

Toulon from 1848 to 1857 amounted to 7,400,000 cubic metres or 261,000,000, cubic feet.

Glasgow, from 1844 to 1865, amounted to 6,696,700 cubic metres, or 236,500,000 cubic feet.

Newcastle, from 1862 to 1865, amounted to 7,000,000 cubic metres, or 247,000,000 cubic feet.

For the French exhibition of 1867 it required six months to excavate 400,000 cubic metres of earth, or 14,100,000 cubic feet, at the Trocadéro, whilst the Canal Company towards the end of the period of construction was working at the rate of 25 million cubic metres, or 883 millions of cubic feet per annum.

The greater part of the work was of course done by machinery, but it must not be forgotten that till then such huge machinery did not exist, and that the contractors had to invent special dredgers and other engines and apparatus to enable them to keep their engagements.

We have thus the inclined planes for the mining part of the work; inclined railways, that is, with fan-shaped sidings top and bottom, and trucks drawn up by stationary engines for the stone and sand removed by the miners; elevators, or dredgers, provided with cases which are raised to the crest of the banks by steam power, and by the release of a spring discharge their loads and return; finally the long trough dredgers, huge engines of 500 to 600 tons (the one sunk in the canal in June, 1885, weighed 760 tons), provided with troughs 230 feet long, supported on lighters and trestles, and along which the dredgings flow, hastened by a stream of water from steam pumps, across the crest of the banks to the land beyond.[19]

As to the hand labour, the lovers of statistical pleasantries may be interested to know that the couffins, or rude Arab baskets, used by the natives at the trench of El Guisr alone, would reach, placed end to end, three times round the world.

When we consider that sixty years since the short Mahmoudieh canal is said to have cost the lives of 30,000 fellaheen, it is gratifying to note the following statistics of the company's chief medical officer:—

		Per cnt.		
1863.	Mortality	1·40		
'64.	,, ...	1·36		
'66.	,, ...	2·49	Population	18,605
'67.	,, ...	1·85	,, ...	25,770

In 1868, notwithstanding the enormous amount of work done by hand and by machinery, the mortality on a population of 34,258 was but 1·52 per cent., against a mortality in the whole of France of 2·40 per cent., and in the French army of 1·94 per cent.

We may surely then congratulate M. de Lesseps on his peaceful conquest in the words of our national poet:—

> "A victory is twice itself when the achiever brings home full numbers."
> *Much Ado About Nothing*, act i, scene i.

IV.—*The Accounts of the Canal.*

The Suez Canal is doubtless a great engineering triumph, but after all the true test of its success is its commercial value.

We have to ask the very commonplace questions: What did it cost? What does it pay?

To these questions we are now about to seek an adequate answer.

With the hope of saving labour and researches to future inquirers, and also of placing before the Society all the information obtainable, I have epitomised the yearly accounts of the company, from the opening of the canal to the end of 1886.

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[19] "Histoire de l'Isthme de Suez," par Olivier Ritt. Paris, 1869.

Yearly Balance Sheets. Assets.

	1 Assets representing Cost of Maritime Canal.*	2 Assets as in Col. 1, with addition for Expenses of Construction, &c.†	3 Assets as in Col. 2, with certain Minor Deductions.	4 Assets according to Valuation.‡	5 Available Assets (Cash in Hand, &c).	6 Reserved Assets (Balance of Trentenary Bonds).	7 Total.
	£	£	£	£	£	£	£
1870	16,631,953	17,405,036	17,405,036	691,072	115,336	—	18,211,444
'71	17,405,036	17,643,726	17,446,287	826,680	325,700	600,561	19,199,228
'72	17,446,287	17,502,119	17,480,809	793,710	338,918	320,000	18,933,437
'73	17,480,809	17,512,425	17,477,063	858,939	393,730	320,000	19,049,732
'74	17,477,063	18,878,725	18,870,799	871,821	1,079,228	320,000	21,141,848
'75	18,870,799	18,886,398	18,886,243	847,864	778,395	320,000	20,832,502
'76	18,886,243	18,911,982	18,911,982	872,557	757,783	320,000	20,862,322
'77	18,911,982	18,950,760	18,916,872	884,924	847,153	320,000	20,968,949
'78	18,916,872	19,133,561	19,132,230	713,607	793,900	320,000	20,959,737
'79	19,132,230	19,167,040	19,167,027	703,850	776,931	—	20,647,808
'80	19,167,027	19,239,047	19,239,047	672,730	1,903,545	—	21,815,322
'81	19,239,047	19,275,903	19,275,903	674,558	1,656,418	—	21,606,879
'82	19,275,903	19,335,279	19,335,279	672,836	1,997,934	—	22,006,049
'83	19,335,279	19,522,200	19,522,200	656,950	2,249,459	—	22,428,609
'84	19,522,200	19,631,434	19,631,434	654,659	2,208,109	—	22,494,202
'85	19,631,434	19,782,838	19,782,838	656,841	2,183,508	—	22,623,187
'86	19,782,838	20,235,985	20,235,985	693,560	1,989,020	—	22,917,565

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* The items composing this amount in 1870 were:—construction proper, 11,653,218*l.*; transit, telegraph, estate, and sanitary services, 533,552*l.*; management charges, 1859-69, eleven years, 567,296*l.*; interest on shares, 1859-69, eleven years, paid from capital, 2,673,864*l.*; interest and repayment of debentures, 1868-69, two years, 585,118*l.*; banking charges, stamps and fiscal dues, issues of shares and loan, loss in Egyptian Treasury bonds (since recouped), 618,905*l.* They are not repeated in any subsequent year.

† The chief difference between Cols. 1 and 2 is made by the item of "improvements and repairs, sundry expenses of the year, new plant."

‡ The items comprising this amount in 1870 were:—company's premises in Paris, furniture and fixtures, Paris and Egypt, 41,102*l.*; estate, lands, buildings, furniture, &c., 192,501*l.*; maintenance account, raw materials, coals, stores, &c., 220,490*l.*; transit, navigation and telegraphs, plant, furniture, apparatus, stores, &c., 18,504*l.*; water supply, works, conduits, reservoirs, machinery, furniture, buildings, sheds, &c., 218,475*l.*

Yearly Balance Sheets. Liabilities.

(1). Capital Account. 400,000 *Shares at* 500 *frs.* = 20*l.*, *Repayable by Drawings, Ninety-Nine Years*, 1968.

	Amount.		Amount.	
			In Circulation.	Repaid by Drawings.
	£		£	£
1870	8,000,000	1877	7,969,260	30,740
'71	8,000,000	'78	7,964,500	35,500
'72	8,000,000	'79	7,959,500	40,500
'73	8,000,000	'80	7,954,260	45,740
'74	8,000,000	'81	7,948,760	51,240
'75	8,000,000	'82	7,942,980	57,020
'76	8,000,000	'83	7,936,900	63,100
		'84	7,930,520	69,480
		'85	7,923,820	76,180
		'86	7,916,800	83,200

(2). Loans (*a*), *Consolidation of Overdue Interest on Share Capital*, 400,000 *Bonds*, 3*l.* 8*s.* = 85 *frs.*, *bearing Five per Cent. Interest, Payable Half-Yearly and Repayable by Drawings within Forty Years*, 1882-1922.

	Amount.		Amount.	
			In Circulation.	Repaid.
	£		£	£
1874	1,360,000	1882	1,359,201	799
'75	1,360,000	'83	1,358,361	1,639
'76	1,360,000	'84	1,357,481	2,519
'77	1,360,000	'85	1,356,552	3,448
'78	1,360,000	'86	1,355,580	4,420
'79	1,360,000			
'80	1,360,000			
'81	1,360,000			

(3). Loan (*b*) *of* 1867-68. 333,333 *Bonds at* 12*l.* = 300 *frs.*, *bearing Interest* 25 *frs. or* 1*l. per Annum, Payable Half-Yearly and Repayable at* 500 *frs.* = 20*l. by Drawings within Fifty Years*, 1868-1918, *with Premiums of* 250,000 *frs. or* 10,000*l. per Annum.*

	Amount.		Amount.	
			In Circulation.	Repaid.
	£		£	£
1870	3,999,996	1877	3,778,560	221,436
'71	3,999,996	'78	3,748,632	251,364
'72	3,999,996	'79	3,717,180	282,816
'73	3,999,996	'80	3,684,132	315.864
'74	3,999,996	'81	3,649,416	350,580
'75	3 999,999	'82	3,612,936	387,060
'76	3,999,996	'83	3,574,620	425,376
		'84	3,534,360	465,636
		'85	3,492,060	507,936
		'86	3,447,624	552,372

Yearly Balance Sheets. Liabilities—Contd.

(4). Loan (*c*) *of* 1871. 200,000 *Bonds at* 4*l.* = 100 *frs., bearing Interest of* 8 *frs. per Cent.* = 8 *per Cent. per Annum, Payable Half-Yearly and Repayable at* 125 *frs.* = 5*l. by Drawings within Thirty Years,* 1873-1902, *of which* 120,000 *Issued.*

	Amount.		
	£		
1871	800,000		
	120,000 Issued.	In Circulation.	Repaid.
	£	£	£
1872	480,000	—	—
'73	480,000	—	—
'74	480,000	—	—
'75	480,000	—	—
'76	480,000	—	—
'77	—	442,296	37,704
'78	—	434,856	45,144
'79	—	428,252	51,748
'80	—	418,848	61,152
'81	—	408,844	71,156
'82	—	398,200	81,800
'83	—	386,876	93,124
'84	—	374,824	105,176

	Amount.		
	120,000 Issued.	In Circulation.	Repaid.
	£	£	£
1885........	—	362,000	118,000
'86........	—	348,360	131,640

	80,000 Reserved.
	£
1872........	320,000
'73........	320,000
'74........	320,000
'75........	320,000
'76........	320,000

	In Circulation.	Cancelled.
	£	£
1877........	300,024	19,976
'78........	293,624	26,376

(5). Loan (*d*) *of* 1880, *at Sundry Prices, bearing* 15 *frs. Interest Payable Half-Yearly, Repayable in Fifty Years* (1930) *in* 20*l.* = 500 *frs.*

	Amount.			
	15,152. 330 frs.	11,848. 350 frs.	3,438. 369·35 frs.	56,101 at Various Prices.
	£	£	£	£
1880............	40,001	—	—	—
'81............	80,002	—	—	—
'82............	162,487	—	—	—
'83............	185,793	121,646	—	—
'84............	200,006	165,872	50,793	—
'85............	200,006	368,081	—	—
'86............	200,006	—	—	852,345

(6). Other Liabilities. *Sundry Creditors, Unpaid Interest, Dividends and Drawn Bonds and Shares, Bills Payable, &c.*

	£		£
1870	338,214	1879	400,561
'71	488,310	'80	1,278,428
'72	139,541	'81	592,335
'73	143,487	'82	760,209
'74	320,517	'83	857,137
'75	345,337	'84	881,856
'76	367,589	'85	905,442
'77	384,078	'86	887,782
'78	365,745		

Yearly Balance Sheets. Liabilities—Contd.

(7). SPECIAL ACCOUNTS.

	Legal Reserves.	Special Fund, 1874.	Cancelled Bonds on Unplaced Part of Trentenary Issue.	Renewal of Plant Fund.	Balances of Consolidated Coupons not Presented.	Special Sinking Fund of Delegations.
	£	£	£	£	£	£
1873	—	—	2,948	10,000	—	—
'74	—	—	6,148	20,000	423,858	194,446
'75	2,235	85,935	8,548	24,593	36,227	194,446
'76 ...	6,452	85,935	13,576	12,410	9,084	194,446
'77	15,925	52,047	19,976	22,952	4,865	194,446
'78 ...	23,562	14,815	26,376	20,688	3,244	194,446
'79	29,340	—	16,091	24,412	2,286	194,446
'80 ...	55,299	—	15,192	50,084	1,768	178,582
'81 ...	107,252	—	15,192	59,772	1,533	173,584
'82	173,935	—	12,554	36,583	1,346	168,252
'83	249,437	—	12,554	36,181	1,238	162,710
84 ...	249 437	—	12,554	5,325	1,166	156,947
'85 ...	249,437	—	7,280	7,185	1,095	150,865
'86 ..	249,437	—	7,280	68,246	1,057	144,439

(8). PROFIT AND LOSS. *Profits of the Year. From* 1880 *the Unpaid Balance of Dividend alone is Credited exclusive of the Amounts paid on Account.*

	£		£
1872	82,851	1880	324,191
'73	182,252	'81	705,432
'74	104,595	'82	816,269
'75	42,468	'83	927,499
'76	80,117	'84	895,832
'77	180,003	'85	854,108
'78	145,084	'86	627,284
'79	109,795		

(9). BALANCE. *Representing Surplus Assets, exclusive of Value of Company's Joint and Separate Estates Entered as Memo. only.*

	£		£
1870	5,873,234	1879	6,030,881
'71	5,910,922	'80	6,031,781
'72	5,911,049	'81	6,031,781
'73	5,911,049	'82	6,034,418
'74	5,912,288	'83	6,034,418
'75	5,932,717	'84	6,034,418
'76	5,932,717	'85	6,039,693
'77	5,934,661	'86	6,039,693
'78	6,005,781		

Yearly Balance Sheets. Liabilities—Contd.

(10). Total Liabilities (*additions of* 1, 2, 3, 4, 5, 6, 7, 8, *and* 9 *on previous pages.*)

	£		£
1870	18,211,444	1879	20,647,808
'71	19,199,228	'80	21,815,322
'72	18,933,437	'81	21,606,879
'73	19,049,732	'82	22,006,049
'74	21,141,848	'83	22,428,609
'75	20,832,502	'84	22,494,202
'76	20,862,322	'85	22,623,188
'77	20,968,949	'86	22,917,565
'78	20,959,737		

It is beyond the scope of this paper to form a mathematical estimate of the theoretic cost of the canal; in other words, to compute the probable value of the contributions in money, land, and labour, of the Egyptian State. We are concerned with the cost of the canal from a business point of view, and may therefore content ourselves with the company's figures.

The assets of the company as given in the last balance sheet were:—

		£
Cost of construction of the canal, and maintenance and improvements to date		20,234,985
This amount includes—	£	
Interest paid on shares during construction	2,673,864	
" and sinking fund of loans, 1868-69, two years	585,118	
Management charges during eleven years	567,296	
Loss on balance sheets of 1870 and 1871	489,260	
Repairs, improvements, and new plant, sixteen years	1,406,557	
	5,722,095	
Assets according to valuation—		
Offices of the company, Paris, London, and Cairo	48,386	
Estate account—		
Buildings, &c.	158,094	
Land not estimated, memo. only	—	
Navigation and telegraphs.—Offices, plant, and stores	17,670	
Maintenance account.—Plant and stores for maintenance of canal	376,078	
Waterworks.—Ismailia, Port Said, and Suez	93,332	693,560
Available assets—		
Cash, bills, unpaid calls, sundry debtors, &c.		1,989,020
		22,917,565

Against this sum the company had the following liabilities:—

Liabilities.

	£
Capital, 400,000 shares at 20*l*	8,000,000
Of which 3,809 shares, 76,180*l.* paid off by the operation of sinking fund of 0·40 per cent.	

Loans.

Loan.	Bonds in Circulation.	Number of Bonds Repaid.	Interest per Bond.	Nominal Value.	Date of Final Extinction.	Bonds Originally Issued.	Issue Price.	
			frs.	frs.			frs.	
Consolidated coupons	398,986	1,014	4·25	85	1922	400,000	85	1,360,000
1867–68	291,005	42,328	25	500	1918	333,333	300	3,999,996
'71...........	90,500	29,500	8	125	1903	120,000	100	480,000
'80...........	15,152	—	15	500	1930	15,152	330	200,006
'80...........	25,186	139				Various	prices	852,345

Note.—Method of redemption, yearly drawings, with 250,000 frs. annual prizes on the loan of 1867-68.

Sundry creditors, unpaid dividends, bills payable, &c., &c.	887,782
Reserves—	
Statutory reserve fund 5 per cent. first charge on divisible profits until amount reaches 5,000,000*l.*, when the annual increment must not exceed 3 per cent.	249,437
Cancelled bonds of withdrawn portion of Trentenary issue	7,280
Reserved fund for removal of plant	68,246
Unclaimed balance of consolidated coupon bonds	1,057
Sinking fund of delegations	144,439
Profit and loss, less interim dividends	627,284
	16,877,872

Summary.

	£
Assets	22,917,565
Liabilities	16,877,872
Surplus	6,039,693

It will be noticed that the loans are entered, not at the nominal or redeemable value of the bonds, but at the issuing price, that is at the amounts they brought in to the company. As events have turned out this was by no means an unsafe plan, as the value of loanable capital having decreased, and the credit of the company risen since these debts were incurred, it is certain that they might be consolidated by means of a new issue on more favourable terms.

There is also another loan, consisting of the so-called delegations, of which 120,000 were issued of a nominal value of 500 frs., bearing the interest and dividends of ordinary shares, and repayable by yearly drawings terminable in 1894.

These bonds were issued against the coupon sheets detached from the 176,602 ordinary shares of the Egyptian Government, and resold, minus the coupons to 1894, to England.

Of the 176,602 coupon sheets, 120,000 are set apart to meet the interest and dividends on the delegations, and the remaining coupon sheets provide the sinking fund to extinguish the delegation loan.

The sinking fund is represented by a yearly charge in the balance sheet, and appeared in that of the 31st December, 1886, as 144,439*l*.

There were then in circulation 58,146 bonds.

The balance sheet, as we have seen, shows a surplus of 6,039,693*l*.

This sum is thus accounted for—

Indemnities from the Egyptian State—		£
Imperial award, 6th July, 1864		3,360,000
Settlement of accounts and compensation for return to Egypt of various lands and privileges	£ 1,200,000	
Less value of Damietta store houses already paid	10,219	
		1,189,781
Retrocession of Wady to the State	400,000	
Less buildings, furniture, plant, &c., of company, and indemnity on discharging staff	94,061	
		305,939
		4,855,720
Temporary investments		804,141
Receipts during construction of the canal—		
Transit, post, telegraph, estates, sanitary service, banking profits, &c.		274,801
Reserve funds applied to improvements—		
Part of special fund, 1874.		
Part of capital of 6,594 cancelled bonds of Trentenary issue		105,031
		6,039,693

These accounts, which I have done my best to compress as far as possible, give us I think a clear idea of the actual position of the company, of its solvency, of the value of its assets, and of the cost of the canal.

The following tables of the receipts and expenditure of the company since the opening of the canal will give us some details of the earning power of the enterprise:—

Receipts.

	Banking Profits.[a]	Estates.[b]	Transit and Navigation.[c]	Maintenance Account.[d]	Water Supply.[d]	Special Accounts, 1870.[e]	Receipts concerning Previous Years [e]	Total Receipts.	Expenditure, Interest, &c.[f]	Net Profits.	Five per Cent. to Reserve Fund, in accordance with Article 69.	Balance Distributed.
	£	£	£	£	£	£	£	£	£	£	£	£
1870........	8,665	11,448	228,750	14,439	721	106,949	383,560	754,532	—	—	—	—
'71........	3.420	42,782	370,018	108,392	6,193	237	105,700	636,742	—	—	—	—
'72	18,508	42,268	663,710	5,417	3,097	—	—	733,000	—	—	—	—
'73.......	18,027	39,053	928,000	4,698	3,211	—	256	993,245*	—	—	—	—
'74	19,107	20,119	1,004,371	8,112	3,631	—	13,706	1,069,046†	—	—	—	—
'75.......	25,072	34,011	1,164.950	5,155	3,900	—	697	1,233,785	1,189,082	44,703	2,235	42,468
'76........	11,452	21,600	1,206,190	2,427	4,081	—	1,237	1,246,987	1,162,654	84,333	4,216	80,117
'77........	9,857	21,451	1,318,100	4,176	4,748	—	694	1,359,026	1,169,549	189,477	9,474	180,003
'78........	17,632	20,618	1,251,692	1,332	4,870	—	3,709	1,299,853	1,147,133	152,720	7,636	145,084
'79........	14,049	17,574	1,195,054	4,812	5,204	—	1,273	1,237,966	1,122,392	115,574	5,779	109,795
'80........	22,439	22,126	1,599,700	6,395	5,764	—	16,412	1,672,836	1,153,672	519,164	25,958	493,206
'81........	76,389	21,821	2,069,508	12,266	6,895	—	167	2,187,046	1,147,970	1,039,076	51,954	987,122
'82........	52,582	21,462	2,443,022	12,058	7,147	—	113	2,536,384	1,202,729	1,333,655	66,683	1,266,972
'83........	36,480	43,742	2,645,504	6,546	8,210	—	451	2,740,933	1,230,890	1,510,043	75,502	1,434,541
'84........	37,663	57,264	2,505,558	6,170	8,251	—	1,425	2,616,331	1,213,457	1,402,874	Nil	1,402,874
'85........	39,325	47,250	2,498,980	5,164	10,974	—	305	2,601,998	1,240,847	1,361,151	"	1,361,151
'86........												

[a] Interest on temporary investments; exchange profits, &c.

[b] Revenue of joint estate and company's estate; sale of lands; allowance of Government for deficiency.

[c] Tolls of vessels, passengers, and boats; pilotage, towage, wharfage; traffic by company's boats; hire of plant.

[d] Sundry receipts.

[e] Deficit 1870-71 transferred to account of first cost of construction.

[f] Inclusive of interest and sinking fund of consolidated coupon bonds; interest and sinking fund on share capital.

	£
* Total Receipts, 1873	993,245
Expenditure of the year 1873	693,844
	299,401
Brought forward from 1872	82,851
	382,252
July coupon 1870 on capital paid in 1873	200,000
	182,252

† Total receipts, 1874..................................	£1,069,046
Expenditure of the year 1874	746,703
	322,343
Brought forward from 1873	182,252
	504,595
Interest for second half year of 1870 paid in 1874	400,000
	104,595
Annual sinking fund of shares 1870-74, as per Articles of Association	18,660
	85,935

Expenditure.

	Charges on Capital.[a]	Administrative Charges.[b]	Estate.[c]	Transit, Navigation, and Telegraph.[d]	Maintenance of Plant and Warehouses.[e]	Water Supply.[f]	Charges of Year.	Charges of Previous Years.	Total.
	£	£	£	£	£	£	£	£	£
1870....	421,662	42,790	16,712	60,231	110,380	8,887	660,662	93,870	754,532
'71....	422,484	38,464	22,472	68,792	71,718	11,538	635,468	1,274	636,742
'72....	456,716	35,825	23,643	64,570	62,851	6,545	650,150	82,850	733,000
'73....	469,164	36,753	24,557	61,378	92,567	8,822	693,241	603	693,844
'74....	495,008	37,733	18,406	60,233	121,719	9,680	742,779	3,924	746,703
'75....	463,292	38,718	23,208	63,342	113,323	10,053	711,936	5,925	717,86
'76....	465,785	42,344	19,433	62,363	91,868	7,993	689,786	1,105	690,891
'77....	466,219	45,400	19,081	64,796	91,335	10,452	697,283	1,036	698,319
'78....	464,883	46,729	17,143	63,852	74,624	8,506	675,737	173	675,910
'79....	456,329	42,944	11,669	61,667	71,077	7,338	651,024	143	651,167
'80....	463,559	45,705	16,393	62,329	83,195	10,086	681,267	1,190	682,457
'81....	464,069	45,626	14,158	66,592	78,832	7,151	676,428	331	676,759
'82....	465,287	51,296	22,710	97,350	85,694	7,721	730,058	652	730,710
'83....	469,046	59,761	38,528	93,438	89,746	7,781	758,300	561	758,861
'84....	476,658	57,429	32,461	91,273	75,970	7,197	740,988	446	741,434
'85....	483,564	56,226	40,575	97,310	82,538	8,352	768,565	253	768,818
'86....	489,489	57,825	22,098	90,975	84,006	9,765	754,158	409	754,567

[a] Interest and sinking fund of debentures and trentenary bonds; stamp and transfer dues; issue charges on loans; Egyptian Government control, and divers other expenses.

[b] *France.*—General administration; board of direction; staff; general meeting; publications; London agency. *Egypt.*—Staff; head agency; sanitary service.

[c] Staff and sundry expenses; superintendence and appropriation of lands; roads; new plantations; care of buildings and plantations; agricultural experiments; portion concerning Egyptian Government, as per accounts of company in the receipts of 1873.

[d] Staff; sundries; working expenses; traction; coal; tools; repairs to plant, buoys, &c.

[e] Staff; maintenance and repairs of plant and depôts of canal accessories; renewal of plant, &c.

[f] Staff, coal, &c.; repairs; renewal fund.

The *Expenditure* items call for little remark; they are as follows:—

	£
Interest and sinking fund of loans, an increase on 1870 of 68,000*l.*	489,489
Administrative charges, increase on 1870 of 15,000*l.*, average 46,000*l.*	57,825
Estate charges, 150 per cent. more than in 1870, average 22,500*l.*	22,098
Transit, navigation, and telegraph charges, very steady, 60,000*l.* to 66,000*l.* from 1870 to 1881, when they increased 50 per cent.	90,975
Maintenance of plant and warehouses, against which there is usually a small set off in receipts	84,006
Water supply, from 1870 to 1880, varying from 6,500*l.* to 11,500*l.*, since when steady, 7,000*l.* to 9,700*l.*	9,765
Charges of previous accounts	409
	754,567

The receipts, on the other hand, were as follows:—

	£
Banking profits	40,129
Maintenance account	10,662
Receipts of previous years	75
Estate accounts	27,510
Water supply	10,598
Transit and navigation	2,271,931
	2,360,905
Less expenditure— Interest, 5 per cent, and sinking fund of share capital; interest, 5 per cent., and sinking fund of consolidated coupons	1,226,578
Net profits	1,134,327

Of the items of receipts, the three last only are of interest to us. The receipts from landed property from 1870 are thus detailed—

Years.	Sale of Lands.	Rent of Lands.	Sale of Buildings.	Rent of Buildings.
	£	£	£	£
1870	—	2,861	—	7,801
’71	33,608	3,124	6,219	6,405
’72	33,362	2,733	4,426	4,830
’73	30,860	3,495	764	4,474
’74	10,385	2,512	1,937	4,469
’75	17,043	2,365	8,057	7,372
’76	5,665	1,287	8,622	10,036
’77	2,134	3,331	5	10,389
’78	2,737	2,046	157	10,076
’79	1,625	1,905	11	10,663
’80	10,790	1,952	587	9,875
’81	8,321	1,054	241	11,094
’82	5,400	3,472	1,050	11,071
’83	28,584	3,560	5,388	11,145
’84	43,513	3,694	4,560	11,524
’85	31,931	4,098	2,299	11,221
’86	11,500	4,761	1,723	11,249

The amounts of the sales are of course very irregular, but the rents, it will be noticed, are steady and increasing. As before remarked, the company takes no credit in its balance sheets for the value of unsold lands.

From 1872 to 1886 the receipts for water supplied have increased from 3.000*l.* to 8,474*l.* for the Ismailia waterworks, supplying Ismailia and Port Said, and from 2,800*l.* to 4,960 (1877 to 1886) for Suez town. Whilst on the one hand the receipts will continue increasing, a fall may be expected in the expenditure, the company having, by means of an agreement, dated December, 1884, with the Government, arranged to replace the conduits and pumping stations by a branch of the freshwater canal as originally intended.

Lastly, and most important of all, I subjoin a table giving the movement of the traffic and navigation dues—the backbone of the enterprise—from which it will be seen that the last five years show an enormous increase in the transit. Taking the gross tonnage for 1870 at the arbitrary figure 100, the following is the ratio of increase:—

1870	1871	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884	1885	1886.
100	174	330	478	556	674	704	785	755	743	997	1,330	1,635	1,848	1,910	2 061	1,877

The receipts of 1870 are to those of 1886 as 100 to 1,260, the tariff from 1874 to 1885 showing a fall of over 28 per cent.

The number of ships has not increased in the same ratio as the tonnage, the size of the vessels increasing year by year almost without a break.

	Ratios of Increase.	
In 1872 vessels averaged 1,330 gross tonnage, 1,073 net tonnage	Gross tonnage	1 : 1·985
In 1886 vessels averaged 2,640 gross tonnage, 1,860 net tonnage	Net ,, ...	1 : 1·733

Navigation Dues encashed from 1870 *to* 1886.

Years.	Gross Tonnage.	Net Tonnage.	Number of Ships.	Average Net Tonnage per Ship.	Total Navigation Dues.	Navigation Dues per Tonnage Net.
					frs.	frs.
1870....	—	436,609	485	898	4,345,758·42	9·95
'71....	—	761,467	765	995	7,595,385·13	9·97
'72....	1,439,169	1,160,743	1,082	1,073	14,377,092·17	12·38
'73....	2,085,070	1,367,767	1,173	1,166	20,850,726·15	15·17
'74....	2,423,672	1,631,650	1,264	1,290	22,667,791·94	13·28
'75...	2,940,708	2,009,984	1,494	1,358	26,430,790·61	13·15
'76....	3,072,107	2,096,771	1,457	1,439	27,631,458·20	13·17
'77...	3,418,949	2,355,447	1,663	1,416	30,180,928·72	12·81
'78....	3,291,535	2,269,678	1,593	1,424	28,345,672·87	12·92
'79....	3,236,942	2,263.332	1,477	1,532	27,131,116·77	11·98
'80...	4,344,519	3,057,421	2,026	1,509	36,492,620·25	11·93
'81....	5,794,401	4,136,779	2,727	1,517	47,193,882·67	11·41
'82....	7,122,125	5,074,808	3,198	1,586	55,421,039·59	10·92
'83....	8,051,307	5,775,861	3,307	1,746	60,558,488·57	10·48
'84....	8,319,967	5,871,500	3,284	1,787	58,628,759·82	9·98
'85....	8,985,412	6,335,752	3,624	1,748	60,057,259·97	9·04
'86....	8,183,313	5,767,656	3,100	1,860	54,771,076·00	9·49

Our next two tables give the profits distributed up to 1886 as well as the prices of shares, highest, lowest, and middle, and the total dividends paid.

The profits, exclusive of 5 per cent. to capital and percentage to sinking fund, were in all 8,887,096*l.*, of which—

£		Per Cent.
249,437	to Reserves	—
6,132,740	,, Shareholders	71
1,295,650	,, Egyptian Government	15
863,767	,, Founders	10
172,751	,, Directors	2
172,751	,, Staff	2
8,887,096		100

The original shareholder has had an average of 7½ per cent. on his outlay. His stake is now worth four times what he paid, and he has moreover a consolidated coupon bond of 85 frs. The first fifteen years however were times of weary waiting. From 1871 to 1874 no dividend was paid, and at one time the price of the 500 frs. bond fell to 165 frs.

The actual rate of capitalisation is about 4 per cent. To anyone interested in the welfare of Egypt it is sad to think that the embarrassments of the Government have compelled it not only to sell its coupons and its shares, but also the royalty to which its sacrifices gave it a more than equitable right. A French banking establishment took over the Government's 15 per cent. share of profits as a set off to claims against the Egyptian State, and issued bonds called "parts civiles" to the public in order to realise immediately the amount of its acquisition.

Distribution of Profits of the Suez Canal Company for the Twelve Years ending 1886.

Year.	Net Profits.	Five per Cent. to Reserve.	Available for Distribution.	71 per Cent. to Shareholders.	15 per Cent. to Egyptian Government	Ten per Cent. to Founders.	Two per Cent. to Direction.	Two per Cent. to Staff.
	£	£	£	£	£	£	£	£
1875	44,703	2,235	42,468	30,153	6,370	4,247	849	849
'76	84,333	4,216	80,117	56,883	12,018	8,012	1,602	1,602
'77	189,477	9,474	180,003	127,803	27,000	18,000	3,600	3,600
'78	152,720	7,636	145,084	103,010	21,763	14,509	2,901	2,901
'79	115,574	5,779	109,795	77,954	16,469	10,980	2,196	2,196
'80	519,164	25,958	493,206	350,176	73,982	49,320	9,864	9,864
'81	1,039,076	51,954	987,122	700,857	148,069	98,712	19,742	19,742
'82	1,333,655	66,683	1,266,972	899,550	190,046	126,698	25,339	25,339
'83	1,510,043	75,502	1,434,541	1,018,524	215,181	143,454	28,691	28,691
'84	1,402,874	Nil	1,402,874	996,041	210,431	140,288	28,057	28,057
'85	1,361,150	,,	1,361,150	966,417	204,172	136,115	27,223	27,223
'86	1,134,327	,,	1,134,327	805,372	170,149	113,432	22,687	22,687
	8,887,096	249,437	8,637,659	6,132,740	1,295,650	863,767	172,751	172,751

Prices and Dividends of Shares of Suez Canal.

Year.	Price of Shares in Paris.			Dividend.			Per Cent.
	Highest.	Lowest.	Middle Price.	On Share.	On Coupons. Bonds.	Total.	
	frs.	frs.	frs.	frs.	frs.	frs.	frs.
1861	450·00	438·75	444·37½	25·000	—	25·000	5·00
'62	510·00	423·75	466·87½	25·000	—	25·000	5·00
'63	558·75	460·00	509·37½	25·000	—	25·000	5·00
'64	498·75	412·50	455·62½	25·000	—	25·000	5·00
'65	465·00	411·25	438·12½	25·000	—	25·000	5·00
'66	447·50	220·00	333·75	25·000	—	25·000	5·00
'67	382·50	220·00	301·25	25·000	—	25·000	5·00
'68	470·00	257·50	363·75	25·000	—	25·000	5·00
'69	630·00	290·00	460·00	25·000	—	25·000	5·00
1870	385·00	200·00	292·50	25·000	—	25·000	5·00
'71	252·50	165·00	208·75	12·500	—	12·500	2·50
'72	490·00	185·00	337·50	—	—	—	—
'73	486·25	378·75	432·50	—	—	—	—
'74	475·00	375·00	425·00	—	—	—	—
'75	865·00	470·00	667·50	25·630	—	25·630	5·12
'76	840·00	770·00	805·00	27·220	—	27·220	5·44
'77	762·50	565·00	663·75	31·54½	4·25	35·79½	7·16
'78	790·00	700·00	745·00	30·44½	4·25	34·69½	6·94
'79	770·00	690·00	730·00	28·299	4·25	33·179	6·63
1880	1,327·50	715·00	1,021·25	46·886	4·25	51·136	10·23
'81	3,475·00	950·00	2,212·50	68·803	4·25	73·053	14·61
'82	3,550·00	1,875·00	2,712·50	81·22½	4·25	85·47½	17·09
'83	2,685·00	1,820·00	2,252·50	88·657	4·25	92·907	18·58
'84	2,167·50	1,810·00	1,988·75	87·252	4·25	91·502	18·30
'85	2,220·00	1,805·00	2,012·50	85·401	4·25	89·651	17·93
'86	2,220·00	1,970·00	2,095·00	75,335	4·25	79·585	15·92

Having alluded to the purchase from the Egyptian State by the Beaconsfield ministry of the 176,602 ordinary shares with coupons detached to 1894, I think this the moment to say a few words on the transaction.

The price paid for these bonds was somewhat under 4 million £; their value, taking the quotation list of 31st December, 1886, was as follows:—

			£
176,602 ordinary shares	$\frac{2090}{25}$	=	14,763,927
Less value of 120.000 delegations, representing coupons till 1894, cut off said shares	$\frac{1035}{25}$	=	4,968,000
			9,795,927

Few will now contest the advantages England has reaped by this transaction, for putting on one side the financial value, present and prospective, of this acquisition, and the fact that the purchase money bears 5 per cent. (now $4\frac{1}{2}$) interest till 1894, when the shares recover their dividend rights, the possession of these shares has afforded our Government an enormous leverage for obtaining very substantial advantages for our shipping and general interests. No sooner was the purchase completed, than the company gave three of the twenty-five seats on the board to English official directors, and by the agreement of 1884 this number was increased to ten, the board however being enlarged to thirty-two members. The other concessions made at the same time were the following:—

Enlargement of the canal at company's expense.[20]

Establishment of a London office and London committee.

Accidents and strandings taken at company's charge, when not imputable to ships' crews, and pilotage dues abolished.

Decrease of canal tolls, and further successive decreases, so that shipowners will virtually take half profits after 18 per cent. (interest included) is distributed to shareholders. After 25 per cent. dividend all profits to go in reduction of tolls till the rate of 5 frs. per ton be reached.

Confirmation of reduction of tolls on ships in ballast (2·50 frs.).

Amount carried to reserve fund not to exceed 3 per cent., when reserves attain 5 million £.

The above calculations on the basis of the present share capital.

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[20] By an agreement, dated the 20th of December, 1886, the Egyptian Government whilst maintaining its contention that the Canal Company must have its sanction for any enlargement of the waterway, authorises the widening proposed by the Technical Commission of 1884-85, and grants to the Canal Company 4,000 hectares, say 10,000 acres, of land necessary for these improvements, at a price of 80,000*l*.

It is to be hoped that this agreement may cement a lasting peace between the company and its English customers. The state of irritation which arose during the last few years is scarcely to be wondered at—altogether apart from the momentary soreness caused by national and political susceptibilities—for whilst on the one hand we have officials belonging to a nation whose love for mathematical accuracy has raised red tapism to the level of an exact science; on the other we find merchants and captains accustomed to deal so rapidly with gigantic transactions, that the rule of thumb has been carried to an extent which makes the despair of statists.

A little forbearance on both sides, and the conviction that neither party can do without the other, will doubtless however prevent the return of unfriendly feelings which ought never to have existed.

Before I dismiss the question of national feelings with regard to the canal, I cannot forbear alluding to another point which it would argue a want of frankness to evade. Our neighbours never cease girding at us, and naturally so, for the discouragement the scheme received at English hands. In our pessimist views of the technical difficulties, financial prospects, and dangers to English commerce, we may have been absolutely and hopelessly wrong, but we can scarcely admit as much with respect to the political question looked at in the light of recent events.

It is clear that the creation of the canal has increased England's interests and responsibilities in Egypt to an extent far beyond what our statesmen ever desired, and this explains if it does not justify the mistrust of Lord Palmerston, and his disinclination to join in an Austrian, English and French commission to inquire into the practicability of the project. "I should say, therefore,"[21] he wrote Lord Russell, "that it would be best for the French and English "Governments to leave this scheme as a commercial and engineering question to be settled by the result of experience and the "money markets of Europe . . . ."

V.—*The Utility of the Canal.*

To prove the utility to the world in general of the Suez Canal is an easy matter enough; to reduce such utility to figures, however, and to apportion it among the different peoples and the various classes of the trading community is quite a different matter.

For the elucidation of this latter point I can only submit the data I have been able to collect, adding, for what they are worth, such considerations as suggest themselves to me.

The gain in distance from London to the Eastern and Australian ports is as follows:—

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[21] Oakley's "Life of Lord Palmerston," appendix, vol. ii.

Ports.	By Cape.	By Canal.	Saving by Canal.	
			Amount.	Per Cent. of Voyage (Cape).
	Nautical miles.	Nautical miles.	Nautical miles.	
Bombay	10,667	6,274	4,393	41·2
Madras	11,280	7,313	3,967	35·2
Calcutta	11,900	8,083	3,817	32·1
Singapore (*viâ* Straits of Sunda)	11,740	8,362	3,378	28·8
Hong Kong	13,180	9,799	3,381	25·6
Shanghai	14,050	10,669	3,381	24·1
Adelaide	11,780	11,100	680	5·8
Melbourne	12,140	11,585	555	4·6
Sydney	12,690	12,145	545	4·3
Wellington, New Zealand	13,610	13,055	555	4·1

In time, however, there is still a period of twenty-four to thirty hours to be gained, as the transit from 1870 to 1873 was frequently effected in from twelve to fifteen hours, whereas of late years the average duration varied from forty to fifty hours, as will be seen by the following figures:—

Average Duration of Transit through the Suez Canal.

Year.	Actual Steaming.		Total Transit.		Year.	Actual Steaming.		Total Transit.	
	H.	M.	H.	M.		H.	M.	H.	M.
1876	17	–	39	–	1882	18	57	53	46
'77	17	30	40	24	'83	19	32	48	36
'78	17	15	40	10	'84	18	44	41	53
'79	17	12	40	30	'85	18	22	43	–
'80	17	10	41	–	'86	17	52	36	11
'81	18	16	45	53					

To attain the maximum rapidity of transit the canal will have to be enlarged, which is about being done, and the introduction of electric lighting, together with the increase of the number of beacons and buoys, will be necessary.

The economy of time, that is of charges on goods and interest on capital, and the gain in safety and consequent saving in insurance, constitute the positive and concrete utility of the Canal.[22]

The two following tables, giving the analysis of the class of vessels using the canal, and particulars of the passenger traffic, show us the utility of the new route from other than trading points of view:—

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[22] Steamers carrying the electric light may now pass through the canal at night. The Peninsular and Oriental Company and the Messageries Maritimes have already availed themselves of this privilege, and thus considerably shortened their transit time. Average in 1886 for ships using electric light: actual steaming 17h. 1m., total transit 20h. 42m.

Description of Vessels Passing the Canal from 1876 *to* 1886.

Years.	Merchant Steamers.	On Ballast.	Postal Packets.	Steam Transports.	Yachts.	Despatch Boats.	Corvettes.	Frigates.	Iron-clads.	Sailing Vessels.	Gun-boats.
1876....	1,042	—	315	37	11	12	10	4	2	5	3
'77....	1,264	—	298	39	4	12	12	—	—	6	3
'78....	1,089	—	282	75	7	14	9	4	4	25	5
'79....	1,035	—	298	55	7	14	11	—	—	1	13
'80....	1,534	—	363	54	7	20	11	1	4	—	9
'81....	2,010	155	442	42	8	18	9	—	3	1	14
'82....	2,361	154	501	134	10	(154 hired transports)					
'83....	2,498	96	588	54	7	25	9	3	5	1	10
'84....	2,455	23	614	96	3	18	17	—	5	—	24
'85....	2,514	23	580	357	11	32	15	—	15	3	26
'86....	2,258	9	614	117	7	20	27	2	4	2	28

Years.	Sea Dredgers.	Mud Barges.	Steam Tugs.	Steam Barges.	Cruisers.	Sloops	Clippers.	Cistern.	Torpedo Boats.	Total.	Entered from Mediterranean.	Entered from Red Sea.
1876....	5	6	3	2	—	—	—	—	—	1,457	759	698
'77....	5	—	17	—	3	—	—	—	—	1,663	896	767
'78....	14	3	59	—	2	1	—	—	—	1,593	783	810
'79....	4	—	32	—	7	—	—	—	—	1,477	742	735
'80....	2	2	13	—	3	1	2	—	—	2,026	1,054	972
'81....	1	1	15	—	8	—	—	—	—	2,727	1,406	1,321
'82....	(154 hired transports)			37	—	—	—	1	—	3,198	1,610	1,588
'83....	2	—	1	—	8	—	—	—	—	3,307	1,663	1,644
'84....	2	2	6	—	17	—	—	—	2	3,284	1,669	1,615
'85....	1	—	8	—	26	—	—	2	11	3,624	1,862	1,762
'86....	1	—	2	—	—	—	—	5	4	3,100	1,511	1,589

Analysis of Passenger Receipts of Canal Company.

rs.	Troops.				Pilgrims.	Colonists.		Convicts.	Coolies.	Ordinary Passengers.	Passengers by Small Boats.	Total.	Receipts.
	English.	French.	Others.	Total.	Mahometans.	Australian Emigrants.	Siberian Colonists.		Chinese.				In £'s.
1'0	—	—	—	—	—	—	—	—	—	—	—	26,758	10,703
'1	—	—	—	—	—	—	—	—	—	—	—	48,422	19,369
'2	—	—	—	—	—	—	—	—	—	—	—	67,640	27,056
'3	—	—	—	—	—	—	—	—	—	—	—	68,031	27,212
'4	—	—	—	—	—	—	—	—	—	—	—	73,597	29,438
5	—	—	—	—	—	—	—	—	—	—	—	84,446	33,778
6	20,469	5,876	14,075	40,420	8,362	—	—	—	—	20,832	2,229	71,843	28,737
7	—	—	—	39,463	8,949	—	—	—	—	24,409	—	72,821	29,128
8	—	—	—	58,274	11,919	—	—	—	—	26,170	2,847	99,210	39,684
9	—	—	—	42,775	12,672	—	—	—	—	26,697	2,368	84,512	33,805
	—	—	—	49,493	19,764	—	—	504	—	29,139	2,652	101,552	40,621
1	—	—	—	43,164	7,222	337	—	480	—	35,604	3,718	90,525	36,210
2	—	—	—	62,898	6,390	13,499	—	798	—	38,288	9,195	131,068	52,427
	21,056	14,280	12,583	47,919	6,901	22,686	1,942	—	—	36,149	3,580	119,177	47,671
	35,037	23,098	16,183	74,318	8,884	22,630	1,958	881	643	38,987	3,618	151,916	60,766
	43,813	43,655	24,762	112,230	24,174	18,301				47,068	4,178	205,952	82,381
	31,161	31,645	21,787	84,593	14,007	13,702				55,320	3,789	171,411	68,565

The military importance of the passage is apparent from the number of ships of war utilising it, and from the noteworthy fact that during the last eleven years troops to the number of 655,547 have paid toll, an average of nearly 60,000 per annum.

The Mussulman pilgrims were not long in perceiving the advantage of the canal, and for the last eleven years an average of over 11,700 passed annually to or from Mecca.

We see also that within the last three years Australian emigration has abandoned the Cape for the canal route.

The increasing employment of this route for the Australian trade is shown by the following figures:—

Australian Ships Passing the Canal.

Year.	Number of Ships.	Tonnage (Official).	Passengers.
1878	27	46,248	3,509
'79	42	71,600	6,865
'80	51	107,552	5,367
'81	98	208,570	9,770
'82	166	343,006	20,862
'83	226	488,733	31,420
'84	253	553,558	32,373
'85	228	534,432	33,288
'86	206	516,638	34,218

On this point the following extract of a letter from one of the shipping authorities of Sydney, for which I have to thank the manager of the Union Bank of Australia in that town, will be read with interest:—

Sydney, 13*th June*, 1885.

. . . . . . "The canal has done great service to Australia, in "the constant traffic by the magnificent steamers of the Peninsular "and Oriental and Orient steam companies, which each send a "steamer every fortnight, bringing in every case full cargoes, "together with a large complement of passengers for the different "ports of Australia; these steamers return fortnightly by the same "route with full cargoes of wool, leather, tallow, tin, copper, &c., "which before the opening of the canal would have been conveyed "entirely by sailing vessels, the high rate of freight formerly "charged by steamers preventing any but extra valuable goods and "gold being so shipped.

" The fine steamers of the Messageries Maritimes, with three " or four lines of regular cargo steamers belonging to private firms, " keep up a constant traffic between England and the colonies. " In addition there is a regular German line from Hamburg *viâ* " London, always with full cargoes of general merchandise; the " steamers of the private firms generally load coal, here or at " Newcastle for China or India.

" The canal is also used by small steamers built at home for " colonial owners, intended for the coasting trade, which are thus " saved the delay and danger of the Cape route.

" The immigration department here also utilises the canal by " having Government immigrants forwarded to this colony by " large steam vessels through the Suez Canal, instead of the long " sea route *viâ* the Cape in sailing ships, to the great benefit in " health, comfort, and morality to the emigrants." . . . .

The Australian statistics of foreign trade show that there is still a margin for a considerable increase in the traffic of the canal from this source.

*Foreign Trade of South Australia, Victoria, New South Wales, and New Zealand.**

[In millions (and decimals) of pounds sterling.]

Years.	Imports from			Exports to			Total.
	United Kingdom.	Other Foreign† Ports.	Total.	United Kingdom.	Other Foreign† Ports.	Total.	Imports and Exports.
1875............	21·3	2·3	23·6	20·2	0·4	20·6	44·2
'76............	20·1	2·1	22·2	20·2	0·3	20·5	42·7
'77............	21·2	2·0	23·2	20·4	0·4	20·8	44·0
'78............	22·5	2·1	24·6	19·8	0·5	20·3	44·9
'79............	20·8	2·1	22·9	18·0	0·5	18·5	41·4
'80............	18·9	1·9	20·8	25·2	0·5	25·7	46·5
'81............	23·8	2·8	26·6	22·4	1·1	23·5	50·1
'82............	29·1	3·2	32·3	22·8	1·2	24·0	56·3
'83............	28·0	3·2	31·2	25·1	1·7	26·8	58·0

* Extracted from "New South Wales Customs Statistics, &c., for the Year " 1884."

† Exclusively of the United States.

The tonnage statistics of these colonies I have not been able to get, but comparing the tonnage of New South Wales for 1883 with the value of the imports and exports, I find that the 56,300,000*l.* of that year would represent

1,100,000 tons imports
600,000 „ exports

and as the total Australian trade by the canal is now 557,000 tons, we may take it that over one-third of the total traffic, import and export, goes by the canal.

The Eastern trade proper—India, China, Straits Settlements, Dutch East Indies, &c.—naturally profited by the canal from the beginning, and in some cases to such an extent that an increase of traffic by the canal can only be looked for in an increase of the volume of trade.

The following interesting figures relating to the canal traffic are taken from a Board of Trade return published in 1883:—

Tonnage, Steam and Sailing, Entered in 1880 *in United Kingdom from the East and Australia, Value of Imports, and Proportion thereof by Suez Canal.*

	Number of Ships.			Tonnage.			Value of Imports.	Proportion by Canal.
	British.	Foreign.	Total.	British.	Foreign.	Total.	£	Per cnt.
Totals	1,514	236	1,750	1,810,976	186,615	1,997,591	80,377,706	—
Of which by canal, homeward	502	30	532	802,813	39,083	841,896	33,758,636	42

Tonnage, Steam and Sailing, Cleared in 1880 *from United Kingdom for the East and Australia, Value of Exports, and Proportion thereof by Suez Canal.*

	Number of Ships.			Tonnage.			Value of Exports.	Proportion by Canal.
	British.	Foreign.	Total.	British.	Foreign.	Total.	£	Per cnt.
Totals	1,953	415	2,368	2,389,541	415,617	2,805,158	70,694,062	—
Of which by canal, outwards............	718	41	759	1,016,608	46,547	1,063,155	26,863,743	38

		Per Cent.
Total of British imports for 1880, 411,229,565*l.*	Proportion by canal,	8
„ exports „ 286,414,466*l.*	„	9½

It would be extremely interesting and useful to compile a similar table for 1884, but unfortunately the Canal Company no longer collects or publishes the detailed statistics requisite for that purpose. We possess however sufficient data to show that the statistics of 1884 must differ essentially from those given above.

The trade, imports and exports, of the United Kingdom with what we will call the canal countries, amounted in 1880 to about 151 million £. Deducting from this say 25 per cent. for subsequent shrinkage in values, this would represent in 1884 a trade of 113 million £; the total of 1884 is however 145 million £, so that the amount of goods dealt in has increased 28 per cent.

The total canal (official) tonnage was in 1880 a little over 3.050,000, and should therefore have reached last year, allowing for the increment of trade, say 3,900,000 tons, supposing that the English trade is fairly representative of the total trade of Australia and the East. The canal tonnage of 1884 was however no less than 5,800,000; there has therefore been an increase of the traffic to the detriment of the Cape route of nearly 50 per cent.

The Board of Trade in the above mentioned report gives the following details of the proportionate traffic of the canal:—

	Per Cent.		Per Cent.
India and China, imports into United Kingdom....	50.	Exports from United Kingdom	45
Australia	17.	,, ...	1·5
Other countries	66.	,, ...	98

	Tons.
Deducting the Australian traffic of 1880, plus the supposed increase of 28 per cent., from the total of	3,900,000
Say	140,000
	3,760,000
And adding the real Australian traffic of 1884	550,000
	4,310,000

we find that the increase on the India, China, and sundry traffic must be about 1.500.000 tons, independently of the real increase of trade; as however the China trade[23] passed already in 1880 almost entirely through the canal, the increase must be nearly exclusively attributed to the Indian trade.

Of the phenomena following the opening of the canal, one of the most important is the great increase in the Indian trade.

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[23] See figures of the Liverpool Chamber of Commerce, quoted in the Board of Trade report aforesaid.

Eastern and Australian Trade of the United Kingdom. Imports from and Exports to the following Countries.

[000's omitted.]

Countries.	Imports.			Exports.		
	1850.	1870.	1884.	1850.	1870.	1884.
BRITISH INDIA.	£	£	£	£	£	£
Cotton, tea, jute, wheat, indigo, rice, hides, wool, coffee, flax, rape, and linseed	Not obtainable.	25,090,	34,448,	—	—	—
Cotton goods, yarns, iron, machinery, copper, woollens, coal		—	—	7,242,	20,094,	32,062,
STRAITS SETTLEMENTS.						
Tin, spices, cutch, gambier, gutta percha, sago, sugar...		2,547,	4,612,	—	—	—
Cotton goods, yarns, coal		—	—	562,	2,408,	2,816,
CEYLON.						
Coffee, Peruvian bark, cocoanut oil, and spices		3,451,	2,367,	—	—	—
Cotton goods, coal, iron, apparel		—	—	218,	941,	782,
CHINA (including Hong Kong and Macao).						
Tea, silk, hemp, sugar................		9,906,	11,196,	—	—	—
Cotton goods, yarn, woollens, iron, copper, lead................		—	—	1,547,	9,934,	7,993,
SOUTH AUSTRALIA.						
Wool, wheat, copper		1,243,	3,262,	—	—	—
Iron, apparel, cotton and woollen goods		—	—	418,	915,	2,422,
VICTORIA.						
Wool, sheeps' skins, tallow, wheat, leather, meat, furs		5,782,	7,671,	—	—	—
Cotton and woollen goods, iron, paper, books, hardware and cutlery, leather, linens, beer		—	—	589,	4,687,	7,599,
NEW SOUTH WALES.						
Wool, tin, copper, tallow, meat, leather, hides............		3,712,	8,996,	—	—	—
Iron, apparel, cotton and woollen goods, machinery, leather, paper, beer, arms		—	—	1,006,	2,824,	9,391,
NEW ZEALAND.						
Wool, fresh mutton, wheat, &c., tallow, &c., kowrie gum		2,132,	6,015,	—	—	—
Iron, apparel, cotton and woollen goods, leather, hardware, &c.		—	—	112,	1,625,	4,119,
Totals	—	53,863,	78,567,	11,721,	43,428,	67,184,

The increase of 1884 on former years is of course in reality very much greater than appears here on account of the enormous fall in values.

The next important change to be noted is the almost general fall in prices of Eastern produce.

Average Price on Import into the United Kingdom of Articles Exported from various Eastern Countries, deduced from Quantities and Values, in the Years 1870 *and* 1884.

Countries and Articles.			1870.	1884.	Difference per Cent.
			Computed Value.	Declared Value.	
BRITISH INDIA.					
Cotton, raw	cwt.	£	3·27	2·19	− 33·0
Indigo	,,	,,	35·24	23·02	− 34·7
Jute	,,	*s.*	19·58	14·13	− 27·7
Rice	,,	,,	10·73	7·83	− 27·0
Tea	lb.	*d.*	21·00	14·12	− 32·8
STRAITS SETTLEMENTS.					
Cutch and gambier	ton	£	18·23	25·16	+ 37·1
Gutta percha	cwt.	,,	14·29	7·22	− 49·5
Sago	,,	*s.*	15·56	11·30	− 27·4
Pepper	lb.	*d.*	5·20	7·17	+ 36·0
Tin	cwt.	£	6·31	4·07	− 35·5
CEYLON.					
Coffee	cwt.	£	3·19	3·89	+ 22·0
Cocoanut oil	,,	*s.*	39·00	32·40	− 16·9
Cinnamon	lb.	*d.*	28·15	10·43	− 66·5
CHINA.					
Silk, raw	lb.	*s.*	23·60	14·42	− 38·8
,, knubs	cwt.	£	15·56	11·36	− 27·6
Tea	lb.	*d.*	16·81	10·64	− 36·7
AUSTRALIA.					
Wool, Victoria	lb.	*d.*	17·59	13·81	− 21·3
,, New South Wales	,,	,,	16·84	12·61	− 25·1
,, South Australia	,,	,,	8·67	10·34	+ 19·2
,, New Zealand	,,	,,	13·75	12·00	− 12·7

The last point to be observed is that Europe, Great Britain particularly, has gained another source of food supply in the importation of wheat from India and Australia.

It would be puerile to attribute these various effects to the opening of the Suez Canal. The increase of irrigation works and railways in India and the colonies, the extension of telegraphic communication, the considerable amount of capital now at the disposal of these regions, augmented production and other causes, are likewise factors in the problem, but it cannot be doubted that the canal, by cheapening freights and shortening distance, is an important element in the circumstances which brought about these changes.

A letter from a gentleman in Bombay, which I owe to the kindness of the manager of the Chartered Mercantile Bank, lucidly sums up the case in the following words:—

Bombay, 21*st April*, 1885.

. . . . "There is no doubt the trade of the East with "Europe has been revolutionised during the past ten to twenty "years, and the opening of the canal has been the most important "factor in this. At the same time it has been assisted by many "other things.

"No. 1. The improvements in the construction of steamers, and "in marine engines, &c., enabling them to run profitably at rates "which would never have been dreamt of twenty years ago.

"No. 2. The spread and development of railways all over "India.

"No. 3. The opening of the telegraph line to Europe.

"These have all *expedited* and *cheapened* the cost of carriage "from the producers in the East to the consumer in Europe. To "calculate in figures the extent to which this cheapening has been "carried, and the proportion of it due to the canal, is somewhat "difficult. We take some however and make approximations.

"1. The merchant or agent works at a much smaller profit or "commission because he can do (*a*) a larger business, and (*b*) with "greater certainty owing also to the telegraph. These we may "roughly reduce from 5 per cent. to 2½ per cent.

"2. There is the gain in time say from three to four months, "equal to a gain of 1 to 1½ per cent.

"3. The gain in insurance (reduced charge) is about 1 per cent. "also.

"4. When the canal first opened you had to set against these "the 'higher rate of freight by the canal,' but this we believe has "now quite disappeared owing to the causes given in heading "No. 1.

"Perhaps the most important change of all made by the canal, "has been the greater extent to which it has fostered the direct "trade from the East to the continental ports, especially the "Mediterranean ports. All the expenses of depôt, consignment, "and transhipment are thus saved.

"Every mercantile man knows that there is an advantage in "the 'quickness and certainty' with which business can be done, "which increases and indeed makes a trade, and which cannot be "put in any exact figures or estimates whatever.

"The export trade from the East is the point of view we have "taken above, but it applies also, though in a less degree, to the "import trade from Europe." . . . .

We have lastly to say a few words on the trade of the United Kingdom through the canal in contradistinction to the India, China, and Australian trade, from which point of view we have hitherto been looking.

We first notice that great as has been the development of the canal traffic, the English portion thereof has more than kept pace with it, notwithstanding a reaction within the last two years. The following will make this clear:—

Comparison of the Ratios of Increase of the Total Canal Tonnage and the English portion thereof (Gross Tonnage). Totals for* 1870 *taken as* = 100.

Ratio of Increase.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.
Total tonnage............	100	174	330	478	556	674	704	785
English "	100	188	366	518	621	754	810	933
Proportion of English to total	66·4	71·7	73·6	72·0	74·1	74·2	76·2	78·9

Ratio of Increase.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.
Total tonnage............	755	743	997	1,330	1,635	1,848	1,910	2,061	1,877
English "	909	867	1,191	1,656	2,003	2,121	2,182	2,370	2,162
Proportion of English to total	79·9	77·5	79·1	82·7	81·4	76·2	75·9	76·8	76·43

* 1870. 289,233 English tonnage. 435,911 total tonnage.
'86. 6,254,417 " 8,183,313 "

Analysis of Tonnage Statistics of the

(In the proportional tonnage, 1,000 =

		Flags.						
		English.	French.	Dutch.	German.	Italian	Austro-Hungarian	Spanish.
1870	Number of vessels	314	75	2	—	10	26	3
	Proportional tonnage	664	194	1	—	13	44	2
'71	Number of vessels	502	66	5	7	47	63	5
	Proportional tonnage	717	117	9	3	36	51	4
'72	Number of vessels	761	80	13	16	66	61	8
	Proportional tonnage	736	113	18	8	33	37	5
'73	Number of vessels	813	83	36	28	58	70	17
	Proportional tonnage	720	106	35	17	28	43	15
'74	Number of vessels	898	87	53	31	52	61	27
	Proportional tonnage	741	92	44	16	26	35	25
'75	Number of vessels	1,061	84	59	35	57	64	21
	Proportional tonnage	742	77	45	15	27	32	15
'76	Number of vessels	1,090	89	60	27	51	53	26
	Proportional tonnage	762	77	48	13	27	25	18
'77	Number of vessels	1,303	85	63	40	58	46	21
	Proportional tonnage	789	68	45	17	25	22	15
'78	Number of vessels	1,268	89	71	23	44	38	21
	Proportional tonnage	799	76	46	9	20	19	18
'79	Number of vessels	1,144	93	61	16	52	40	25
	Proportional tonnage	775	81	49	6	29	22	20
'80	Number of vessels	1,592	102	70	38	52	60	33
	Proportional tonnage	791	62	41	12	25	24	19
'81	Number of vessels	2,251	109	71	45	52	64	46
	Proportional tonnage	827	50	33	10	19	20	17
'82	Number of vessels	2,565	165	103	109	61	67	32
	Proportional tonnage	814	57	35	25	21	17	11
'83	Number of vessels	2,537	272	124	123	63	67	51
	Proportional tonnage	762	97	39	26	24	17	18
'84	Number of vessels	2,474	300	145	130	54	65	46
	Proportional tonnage	759	100	43	29	20	18	16
'85	Number of vessels	2,734	294	139	155	109	69	26
	Proportional tonnage	768	91	40	31	25	19	9
'86	Number of vessels	2,331	227	127	161	69	77	26
	Proportional tonnage	769	82	40	37	22	24	11

The extent to which English shipping utilises the canal would seem to be the measure of the advantage Great Britain derives from the undertaking. There is however the reverse side of the medal, for the Board of Trade points out, first, that the canal has been prejudicial to our shipowners and capitalists by economising tonnage and saving time, *i.e.*, interest on capital; and secondly, that it has injured our entrepôt trade.

It would be rash indeed in an amateur statist to attempt to criticise the conclusions of the trained experts of the Board of Trade. Moreover, these gentlemen were asked to give direct answers to specific questions, and not to enter into general economic considerations. As however the above objections might

Suez Canal Transit by Nationalities.

total tonnage of any given year.)

Flags.							Total.		
Russian.	Norwegian.	Belgian.	Egyptian.	Turkish.	Danish.	Other States.			
1	—	—	33	17	1	4	486	Number of vessels	1870
1	—	—	51	25	2	3	1,000	Proportional tonnage	
5	1	4	22	32	1	5	765	Number of vessels	'71
6	2	6	17	24	1	7	1,000	Proportional tonnage	
10	6	—	13	33	1	14	1,082	Number of vessels	'72
9	3	—	6	23	1	8	1,000	Proportional tonnage	
9	5	4	7	26	5	12	1,173	Number of vessels	'73
7	5	3	3	10	3	5	1,000	Proportional tonnage	
7	8	1	8	15	1	15	1,264	Number of vessels	'74
5	5	—	2	5	—	4	1,000	Proportional tonnage	
15	10	—	33	19	18	18	1,494	Number of vessels	'75
8	7	—	12	5	8	7	1,000	Proportional tonnage	
14	12	—	12	3	13	7	1,457	Number of vessels	'76
8	7	—	5	1	7	2	1,000	Proportional tonnage	
—	12	2	9	—	15	9	1,663	Number of vessels	'77
—	6	1	2	—	7	3	1,000	Proportional tonnage	
—	5	2	9	3	6	14	1,593	Number of vessels	'78
—	2	1	1	—	3	6	1,000	Proportional tonnage	
7	6	1	12	5	5	10	1,477	Number of vessels	'79
3	3	1	3	1	2	5	1,000	Proportional tonnage	
22	7	1	16	10	10	13	2,026	Number of vessels	'80
10	3	1	3	3	3	3	1,000	Proportional tonnage	
20	10	13	11	11	13	11	2,727	Number of vessels	'81
7	3	4	3	2	3	2	1,000	Proportional tonnage	
18	20	13	21	10	2	12	3,198	Number of vessels	'82
5	5	3	2	2	1	2	1,000	Proportional tonnage	
18	18	12	3	9	2	8	3,307	Number of vessels	'83
6	4	3	1	1	1	1	1,000	Proportional tonnage	
17	18	5	4	4	—	22	3,284	Number of vessels	'84
5	4	1	1	—	—	4	1,000	Proportional tonnage	
29	30	1	7	16	3	12	3,624	Number of vessels	'85
7	6	—	1	1	—	2	1,000	Proportional tonnage	
24	28	1	4	6	1	18	3,100	Number of vessels	'86
6	6	—	—	—	—	3	1,000	Proportional tonnage	

be used without the qualifications which should accompany them, I venture to suggest that the Canal Company would probably answer them in something after the following fashion: "Granted "that your shipowners and capitalists may complain that part of "their former profits now goes to the shareholders of the canal, but "do not forget that the English Government is by far the largest "shareholder; that although, for the moment, it participates only "indirectly in the profits, by the great enhancement of the value "of its investment, this investment has enabled it to press costly "improvements upon the Company, whilst the tolls which, year "by year since 1878, have been reduced, will, by agreement, con- "tinue to fall till they reach one-half of their present amount.

" True, your investment was a political one, but is it our fault if " your merchants, shipowners, and capitalists, usually so sagacious " and far-sighted, absolutely set their faces against a great instru- " ment of economic progress, persisting in a bootless opposition, " when at any time during the construction of the canal, and long " after it was completed and working, they might have become " masters of the undertaking at a price far below the stake of " the original shareholders, and very far below the actual cost?

" Your entrepôt trade has decreased, say you; your tea trade " does not appear to have suffered, the bulk of your cotton and " coffee does not go through the canal, and it is not therefore quite " fair to hold us responsible for any lessening of your exports of " these articles. As to your raw silk trade, it is quite true that the " market has to a considerable extent been transferred to Marseilles " and Lyons, but the economic movement of the last twenty years " tends essentially to eliminate middlemen, to cheapen charges, and " to bring producer and consumer nearer and nearer to one another. " At a time when the Lancashire spinner deals direct with the " American cotton planter, is it astonishing if the spinners of " Mulhouse and Winterthur try likewise to avoid paying toll to " Liverpool; if the Elbeuf clothworker looks with longing eyes to " Australia for the wool he has so long had to go to London for, " and if the Lyons weaver makes every effort to get his raw " material close at hand instead of from England?

" Is it quite sure that even without the canal this movement " would not have taken place, more slowly doubtless, but perhaps " with equal certainty?" . . . .

Arrived at this point, there fell under my notice an article in the "Deutsche Rundschau," entitled "The displacement of the " economic centre of gravity," which seems so consistent with this view, that I cannot refrain from quoting it. The writer, Herr von Neumann-Spallart, maintains that British commerce, although so immense and progressive, is not keeping pace with the commerce of the rest of the world, or of the continent, and in support of his theory publishes the following figures:—

Comparison of Foreign Trade, &c., of United Kingdom with that of the Rest of the World, and also with that of the Continent.

Foreign Trade.

Year.	United Kingdom.	Rest of World.	Total.	Year.	United Kingdom.	Continent.	Total.
	Per cnt.	Per cnt.	Per cnt.		Per cnt.	Per cnt.	Per cnt.
1867–68	24·0	76·0	100	1867–68	34·5	65·5	100
'74–75	24·0	76·0	100	'74–75	33·1	66·9	100
'82........	19·5	80·5	100	'82........	29·0	71·0	100

Comparison of Foreign Trade, &c., of United Kingdom—Contd.

Production of Coal.

1868........	53·6	46·4	100	1868........	62·7	37·3	100
'76........	47·4	52·6	100	'76........	58·5	41·5	100
'82........	41·6	58·4	100	'82........	55·7	44·3	100
'83........	40·7	59·3	100	'83........	55·3	44·7	100

Production of Iron Ore.

1868........	44·1	55·9	100	1868........	51·0	49·0	100
'76........	48·6	51·4	100	'76........	55·5	44·5	100
'82........	39·6	60·4	100	'82........	53·0	47·0	100
'83........	39·1	60·9	100	'83........	52·1	47·9	100

Average Consumption of Raw Cotton.

		Mln. lbs.				
1871	United States	505	1856-60	60·3	39·7	100
'71	„ Kingdom	1,074	'68........	58·3	41·6	100
'83	„ States	1,127	'82........	52·3	47·7	100
'83	„ Kingdom ...	1,489				

Transit of Suez Canal. *Estimated Consumption of Wool.*

1882........	81·4	18·6	100	1876........	29·0	71·0	100
'83........	76·2	23·8	100	'82........	21.0	79 0	100
'84........	75·9	24·1	100	—	—	—	—

The German economist gives the following as the causes of this reaction: "The exhaustion of the soil and of the mineral "wealth of the land is continuous; the advantage of cheapness and "excellence of transport is no longer an English monopoly, but "the common property of the whole of Western Europe and North "America; the riches of the country have led to a diversion of "capital to the colonies and foreign countries, where it fructifies. "Western Europe and North America have, moreover, accumulated "a surplus from their own economical forces, and their national "fortunes have increased to such an extent that their regions are "becoming more and more on a par with England. The aptitudes "of the labouring classes on the continent have been raised by "means of reforms and of technical instruction; the division of "labour and use of machinery have been extended much more "rapidly than was anticipated; nay, a stream of men representing "an abundance of excellent and skilled labour flow year by year "from Great Britain to the United States, and transfers thither, "where, moreover, the Anglo-Saxon race forms the core of

" intelligence, the elements previously in the service of British " industry."

The picture is probably too black. If English commerce has relatively decreased, it has effectively increased very considerably; our trade with India, for example, was in 1868 57,375,000*l.*, or 66·3 per cent. of the total Indian trade; in 1881 it was only 57·9 per cent. of the total trade, but amounted to 72,300,000*l.*, an absolute increase of value alone of 33 per cent. The very immensity of our trade invites attack, and this by protective tariffs and bounties is easy, though more injurious probably to our rivals than ourselves. It is clear, however, that many causes are at work unfavourable to our trade supremacy, and the canal is only one, and by no means the most potent.

What step in material progress was ever taken moreover without bringing loss on some one?

"Pity, no doubt," says Mr. Mongredien in a recent Cobden Club tract,[24] "that the blessings of an abundant harvest should not " prove an unalloyed good, and that while contributing to the " general benefit, it should bring with it transient evil to certain " classes. But every change in human affairs, however much for the " better it may be, has for immediate effect to transfer demand " away from certain forms of labour and capital on to some newer " forms thereof. Thus, all scientific discoveries and labour saving " inventions, while productive of the greatest permanent benefit " to mankind, temporarily displace labour and capital from some of " their accustomed channels." . . . .

Let us not therefore be too parochial minded. If Great Britain has had to suffer some partial and perhaps temporary disadvantage from the canal, Greater Britain—India, Ceylon, the Straits, and Australia—has a permanent, a great, an increasing gain, not only from an economic but also from a political point of view.

The canal is an instrument of progress, and as such indestructible; for every step forward is irrevocable. The steam engine, the telegraph, and the telephone might have slept for ages longer in the brains of inventors, but once given to the world they cannot be recalled.

England would not if she could put back the clock for her own benefit, and if the canal were utterly destroyed to-morrow, Englishmen would probably be the first to set about making a new one.

I might fitly end this already too lengthy paper with a panegyric of the founder of the great work which forms its subject, but the canal itself is his best eulogium, and my feeble voice would add nothing to his fame. The history of the canal is a history of hard work, and its projector would be foremost in rebutting presumptuous praise, in the words of Carlyle:—

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[24] "Trade Depression, Recent and Present," August, 1885.

"My friend, all speech and rumour is short lived, foolish, "untrue. Genuine work, what thou workest faithfully, that is "eternal, as the Almighty Founder and World Builder Himself. "Stand thou by that, and let Fame and the rest go prating."[25]

DISCUSSION *on* MR. RABINO'S PAPER.

BEFORE the paper was read—

The CHAIRMAN (Sir Rawson W. Rawson), announced that the Council had prepared an address to Her Majesty on the occasion of her Jubilee, felicitating her on behalf of the Council and Fellows of the Society upon the auspicious event, and he was sure that the Fellows of the Society would approve of what had been done.

The address was approved.

(The Paper was then read.)

MR. C. M. KENNEDY, C.B., said that rather more than thirty years ago he received the censure of a leading English statesman for saying it was feasible to make the canal, and fifteen years later he was glad to be able to act as interpreter between the captain of a vessel passing through and the pilot. He considered Mr. Rabino's statement as generally accurate, but he did not entirely agree with the views expressed in the paper on the subject of the *entrepôt* trade. We must not minimise the effects which the opening of a new channel of international communication will bring about. No regret need be felt with regard to them, but they must be looked at and fairly considered. Sir John Stokes has taken a chief part in the international arrangements relative to the canal, since the conference held at Constantinople in 1873, and he will be able to offer valuable remarks on the paper just read, as well as to explain the arrangements entered into at different periods, and likewise the present position of questions relating to the canal.

SIR JOHN STOKES, K.C.B., thought the paper contained an admirable *exposé* of the past history of the canal, of its inception, the difficulties encountered, and the mode in which the work was carried out. He could not at a few hours' notice undertake to say that all the figures were correct, but he thought from the evident care bestowed on them they could not be far wrong, and that the Society was to be congratulated on having had before them the most complete paper of reference with regard to the Suez Canal that had come under his purview. He had been asked to give an account of the improvements; they really dated from much earlier than the shipbuilders' agreement. By the convention which he had had the honour to make with M. de Lesseps in 1876, the company engaged to spend 1 million frs. a-year, for thirty years, beyond the ordinary expenditure on maintenance in improving the canal. As time went on the trade of the canal remained nearly stationary up to 1880, in which year tonnage began to increase by leaps and bounds, and as early as 1882 the company was so impressed with the necessity of providing a larger waterway, that of their own accord they decided to spend what remained of the 30 million frs. immediately on works improving the waterway, instead of spreading it over so many years, and that sum was actually expended between the beginning of 1883 and the beginning of 1887. The result has been to widen the canal through the Bitter Lakes from 72 feet to 131 feet at bottom. That increase had almost entirely removed the source of complaint with regard to the grounding of vessels, which generally took place at that point. The shipowners' agreement at the end of 1883 led to the appointment of an International Commission of Engineers, which recommended a series of improvements of a very comprehensive character, that were now on the point of being carried out. Their principal recommendations were that the canal should be eventually deepened by a metre, and that the width of bottom, which was now 72 feet, should be extended to from 213 feet to 278 feet. The company, taking into consideration its financial position, adopted the recommendations of the commission for the first phase of the works to be carried out at once; according to which 15 metres, or 49 feet, is to be added to the width throughout the whole length of the canal in five years, giving at the same time an increased depth of 20 inches, namely, from 26 feet 3 inches to 27 feet 10 inches. The effect of this will be that whenever two vessels are approaching one another, one will draw on one side, allowing the other to pass at any point of the canal, instead of one having to lie in a siding for two or three hours. This first phase of the improvement will cost about 4 million £. The remaining increase of width to 213 feet in some places, 246 feet in others, and 278 feet in the bends, would only be carried out as the tonnage showed signs of increase. It has always been considered that by the time the annual tonnage should reach 10 million tons, vessels should be able to pass right through without a check, passing each other under steam. It might naturally be asked why works decided on in 1885 were only commenced in 1887, but the conditions under which the loan had to be raised and the incidence of its interest adjusted, depended on the assent of the Egyptian Government, and until the end of last year that difficulty was not overcome. Only at the beginning of the present year did the company feel themselves free to commence fresh works. The actual position now was that additional dredging plant to the amount of 1 million sterling had been ordered in France and England; contracts for the dry cutting for the widening had been made; men were now on the work, and it was hoped that next year the new dredgers would set to work in earnest, so that in two years the increased depth would be given. The importance of increasing the depth would appear from the fact that the number of vessels drawing 23 feet of water had increased from 0·13 per cent. to 21·74 per cent. in 1886. He had found on the part of the Egyptian Government a very deep-rooted opinion that the Suez Canal had injured Egypt from a national point of view. No doubt the large indemnities which the Egyptian Government had to pay the Suez Canal Company might lead to that impression, but the real injury arose from the improvident sacrifice of the royalties, which amounted to 15 per cent. on the net receipts of the company. Those profits were abandoned in 1880 for the whole term of the concession to a French syndicate to cover a debt of 700,000*l.* During the last seven years that syndicate has encashed 1,212,025*l.*, and supposing the receipts of the canal never increased beyond those of the last five or six years, the company would pay to the syndicate 14 million £ sterling up to 1968 for that trifling debt of 700,000*l.* Probably the payment will be three times that amount. He thought the Egyptian Government had no right to complain when they had made such a sacrifice. At the time they did it they had already received 83,618*l.* in five bad years, so that they must have known they had got a very valuable property.

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[25] "Past and Present."

Mr. R. Price-Williams, C.E., said that he had repeatedly passed through the canal, and had taken great interest in the progress that had recently been made in repairing and widening the canal at the curved portions. He was glad to hear from Sir John Stokes that the great work of widening the canal throughout had commenced, but when he passed through a month ago such work as was then being carried out was done in certainly the most primitive way, a large number of Arabs being employed in carrying away the excavations upon their heads and in such a way as would take years to complete the work. One thing was certain, that unless the canal was widened very soon, the limit of saturation of the traffic would be speedily reached. He quite believed from the figures that had been given in the paper, that there were all the elements of continued success in the undertaking if it was widened to three times the present width. He wished to ask Sir John Stokes what would be the increased speed when the canal was widened to the full extent contemplated. He had been pleased to find that during the year which had elapsed since he last visited the canal the work of maintaining the banks had made great progress, very considerable portions having been faced with stone during that time. With regard to the historical part of the paper, some discrepancy appeared in the author's statement. It referred to the concession as having been made to M. de Lesseps in 1854, whereas in a paper read before the Institution of Civil Engineers in 1850, the following passage occurred in a footnote: "Since this paper was written the project for making a ship canal from the Mediterranean to the Red Sea has been revived by M. Ferdinand de Lesseps, to whom the Pacha of Egypt *has granted a concession of the undertaking*, besides subscribing for a considerable portion of the required capital. At the instance of M. de Lesseps, an International Commission of Civil Engineers was appointed to examine and report upon the plans; and under their direction an exact survey was made of the country, and the levels between the two seas were carefully taken. The result of these investigations has been to confirm the statement of Mr. Robert Stephenson, that the mean height of both seas is virtually identical, and also the opinion expressed by General Chesney as to the engineering difficulties to be overcome." The report of the commission concluded as follows: "It is not our province to judge what motives may have retarded the execution of a work of this character; but we believe we are only echoing the universal opinion in saying that all delay is to be deplored when once a well considered opinion on the subject has been formed. Our object has been to enlighten, as far as in us lay, the Governments of the world; and with all confidence we submit to them the final results of our inquiry. May our labours hasten the moment when all impediments other than those existing in the actual nature of things shall be removed, and when the artificial Bosphorus at Suez may be thrown open to the navies of all nations." Having regard to the opposition which this undertaking had received from Mr. Robert Stephenson, he was glad to find amongst the members of that commission the names of Mr. J. R. McClean, Mr. Charles Manby, and Mr. J. M. Rendel, two of them past presidents of the Institution of Civil Engineers. He thought it only right for the credit of the profession to which he belonged, that it should be known that the leading members of this profession were so far back as 1850 fully alive to the importance of the great work which had been so admirably carried out by the great French engineer.

The CHAIRMAN said that before he left Mauritius, which was in May, 1854, a friend of M. de Lesseps who arrived in the island gave him a coloured lithograph of a birdseye view of the Suez Canal as then contemplated by M. de Lesseps, so that it was evident that the plans had been then formed.

Mr. JOHN GLOVER thought that the story of the canal was almost a romance. The great growth of trade between Europe and the eastern parts of the world was the result of several circumstances, of which the Suez Canal was one of the chief. While contributing a great impetus to some trades, it had had very important effects in other directions on English trade. He was not at all inclined to think that the effects of the opening of the canal were exhausted, especially if the dues were further reduced. Still, many old fashioned methods of money making in the eastern trades had disappeared. Of course many new methods had arisen. The canal had played a great part in the fall in prices. He had always felt that the importance of the canal to England was very much exaggerated, and he was almost inclined to think that Lord Palmerston's original objections were right, and that it would have suited England better if there had been no canal. Englishmen, however, were the chief users of the canal, and as far as he knew neither our Government nor our shipowners had ever asked for any use of the canal, the benefit of which was not to be open to all nations. In time of war its use to us would be doubtful; it would not only be the canal that they would want neutralised, but the whole of the Mediterranean; so that no scheme of neutralisation of the canal merely would make Mediterranean transit safe to our vessels if we were at war with a first class European State. The Cape route being the safer, would be the likeliest one to be used in time of war. The paper had made it quite clear that so far as finances were concerned the canal was now on a most solid and substantial basis. Sir John Stokes thought that the recent improvements were the result of financial arrangements put into operation in 1876. However that might be, he was happy to be able to state that since the controversy which took place between the English shipowners and the canal company, and the reduction of the tolls and other charges then settled, everything had improved. Transit was decidedly quicker, and complaints had become as rare as they were previously common, as might be expected when there were ten English directors on the board. Throughout the discussion of some very delicate questions on this matter, the English Government had played a most fair and honourable part. There had been only a proper anxiety to get the best terms they could for all European commerce with the East, but at the same time not to deprive the shareholders who ran the risk of making the canal of any reasonable profit to which they were fairly entitled by its success. In the last negotiation the Messrs. de Lesseps had shown themselves most astute and able negotiators. When it was proved that some changes were necessary to meet the facts, they took a reasonable view of the position, and the matter was settled. With regard to the alleged profit derived by England from the purchase of the canal shares, it is too soon yet to speak. It was not credible that without that purchase English interests in Egypt would have developed as they have done, or that we should have had two wars in Egypt since. The loss of life also could not be left out of the question. It was deeply to be regretted that the Egyptian Government had lost so much of their interest in the canal owing to their financial difficulties.

Sir JOHN STOKES said he had been challenged to answer Mr. Price-Williams on one or two points. Certainly the speed was now very slow, because of the necessity not to wash down the banks; but as the width was increased the wave of displacement would become smaller, and a greater speed would be allowed: 7 or 8 knots an hour would doubtless be permitted when the full width was attained. The time of transit would then be reduced to twelve or thirteen hours. Those vessels that had the electric light could now pass through in sixteen hours. The question of the date of the concession was a very interesting one. The first was in November, 1854. Under that the Council of International Engineers was appointed, and reported in 1855. The second concession was dated 5th January, 1856, and that was the one under which the canal had really been carried out. The sketch that the Chairman saw in 1853 or 1854 was easily explained. M. de Lesseps conceived the idea in 1840 when he was consul-general in Egypt, and no doubt made a general sketch of his idea; but it was not till 1853 or 1854 that Saïd Pasha, on ascending the throne, summoned M. de Lesseps to come and see him; he joined the Pasha in his expedition to Khartoum in 1854. It was during that journey that he obtained the first permission to carry out the work. The dates in the paper were quite accurate.

Mr. PRICE-WILLIAMS said the signatures of the engineers appeared in the paper read in 1850.

Sir JOHN STOKES said that in his opinion Lord Palmerston's opposition was a most providential thing for the company. It was to the original concessions, which gave the company a large territory, that Lord Palmerston took exception. That territory was resumed by the Egyptian Government on payment of an indemnity, and they now had only the land through which the canal passed. If M. de Lesseps had been able to make it in 1857-62, it would have been a great financial failure, because the ships of those days could not have used it. It was the invention of the compound engine which made the canal a success.

The CHAIRMAN said it was Lord Palmerston's opposition which led the French to support it as they did.

Sir JOHN STOKES said the English Government had never asked for any favour to be shown to the English flag, because the concession said that no flag should have preference over any other. As regarded the observation that the canal was an injury to English trade, he could only say that that trade could pass round the Cape if it wished, but English merchants saw that it was better to turn over their money three or four times a year by going through the canal, than to go round the Cape and only turn it over once or twice; but in case of war with a great country like France, no one would ever think of sending merchant steamers through the Mediterranean to the canal; they must go by the Cape. The whole of the French fleet would have to be destroyed before the canal route could be used. He could bear witness to the extreme desire of the English Government not to press unfairly on the canal company. They had never interfered with the enterprise in any way except to keep the company to their legal bond.

The CHAIRMAN regretted that M. Charles de Lesseps had not been present to hear the testimony that had been borne to his honoured father, the founder of the canal. He himself could not add to the information that had already been given, and would therefore simply propose a vote of thanks to Mr. Rabino, who had previously given them a valuable paper on the finances of Egypt. He was sure the meeting would also join in a vote of thanks to Sir John Stokes for the interesting supplement that he had given to the paper.

The votes of thanks were agreed to, and the proceedings terminated.

MISCELLANEA.

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I.—*The Tables of Mortality and Survivorship. By* EMILE LEVASSEUR. (Translated from the *Journal de la Société de Statistique de Paris*, March, 1887.)

IN the struggle for existence no generation ever returns to its starting point; all move constantly forward for a period, sometimes less than, but rarely exceeding a century, their progress being marked by the deaths which occur on the way, until the last of the survivors is swept off.

To keep a record of the successive losses that reduce to exhaustion a generation in the course of its existence, is to draw up a table of mortality which, to employ the term introduced by Guillard, becomes a table of survivorship, since a register is kept of the number of survivors at each period of life instead of the number of deaths which occur. A table of survivorship is closely connected with the death-rate and with the tables of the population classified according to age, but the three are however distinct.

A table of survivorship is the history of an ideal generation, no matter what system is employed in drawing up this table, taken as a type of the vitality of a group of persons; the death-rate is the tribute that each group of ages of a given population pays to death, either during a given year, annually, or the average for a certain period; the table by ages is the reflection at a given instant of a population comprising a hundred generations exposed to various risks of mortality, and having almost invariably been subject to modifications effected by emigration and immigration.

The table of survivorship proceeds, however, on much the same lines as the mortality tables, being in fact deduced from them. From a generation composed in a certain manner the operator cuts off successively year by year the contingent claimed by death, noting at each deduction the numbers taken and the proportion remaining until the whole are extinguished. Tables of survivorship are of manifold uses; not only do they furnish data most useful to demography, but they are the necessary instruments for effecting certain contracts—life assurance, for example. It was rather with a view to their practical utility than for their scientific interest that they were first drawn up.

Without entering into any details of their construction, we will proceed to point out the principal systems on which these tables have been prepared. The one to which the name of Halley's method has been applied is an indirect method which is applicable when only one of the two essential elements is obtainable, namely, the death by ages. The operator commences with the assumption that all the deaths are supplied by the same generation, that is to say, by persons born during the same year, and with the aggregate he builds up a fictitious population; he adds together all those dying at the age of 1, 2, 3, 4, &c., and deducts from this assumed population the deaths of the first year; then from the number of survivors the deaths of the second year, and so on to the end. Proceeding on this principle, he makes a calculation analogous to that of the death-rate, but this calculation only leads to a complete result by means of frequent interpolations, when, for example, he deals with too restricted a number of elements, or when he is only acquainted with the ages at which deaths occur by periods or in some vague manner and not at a precise date. Another cause of imperfection or incompleteness is that the calculation is made on the hypothesis, very rarely justified, it may be observed, of a stationary population, of which the birth-rates and death-rates would be invariable, and which would be affected neither by emigration nor immigration. For example, acting on the supposition that there are thirty deaths at 80 years of age and thirty at 2 years, these deaths would be furnished if a population is in progress by a number of births less for the old people of 80 than for the children of 2. They are, however, attributed to the same population: thus the mortality at an advanced age is exaggerated and infant mortality depreciated. Besides this, Halley's method does not take into account, as we have shown above, either emigration or immigration, both of which exercise a considerable influence in modifying the vitality of groups of age.

The second method, frequently designated Deparcieux's method, is a direct one, and consists of following a particular and homogeneous group of persons from their birth up to their final extinction, thus imparting to the said group its proper vitality. It proceeds, moreover, very much on the same lines as the system to which we have referred above; a list of the deaths by ages is first drawn up, and from the remainder are successively deducted the deaths at each age, thus establishing by the difference the series of survivors. This is the method chiefly in vogue for the construction of tables of survivorship, and consequently the one employed by assurance companies.

The third is the demographic method. This does not deal with any selected class, but is applied either to the total population of a town, district, or state, or to the total population classified according to sexes or profession. It supplies the knowledge of the vitality of an actual group of persons, and it is for this reason that it is preferred by those interested in the science of demography. Quetelet, when engaged in drawing up the Belgian tables of survivorship, wrote as follows in the *Bulletin de la Commission de Statistique Belge*:—"The tables of mortality as they are generally drawn up mix together widely different elements, and exhibit at the same time the effects of the actual mortality and of the mortality of a past age, without taking into account the fluctuations that the population has been subject to. I consider as the actual mortality the probability of persons at each age living another year. The value would evidently be calculated with greater exactitude if it could be directly deduced from the results of the census and of the death registers."

The demographic method also assumes a precise knowledge of the population by age and of the deaths by ages of the same population; it obtains the former from the census returns, and the latter from the civil registers. For each year of age, or better still, to compensate for any errors that may have crept into the census returns and into the registers of deaths, for each period of ages, the operator compares the number of persons having the given age and the number of deaths at the same age; he ascertains the relation of these two numbers, that is to say, the death-rate; then starting with a round number of living births, say 100,000, he obtains a table of survivorship which he continues until the period when the 100,000 find themselves reduced to 0.

During the last forty years considerable attention has been devoted to this method, which has only been capable of application since the establishment of census enumerations, and many improvements have been introduced into it by mathematicians and statisticians such as Fourier, Moser, Demonferrand, Quetelet, Bertillon, Hermann, Farr, Wittstein, Becker, Knapp, Lund, Körösi, Van Pesch, and others. Much valuable information on the subject of the systems employed in preparing tables of survivorship may be found in an article by Dr. Bertillon, entitled *Des diverses Manières de mesurer la vie humaine*, which appeared in the *Journal de la Société de Statistique de Paris* for March, 1886; in Dr. Knapp's work, *Ueber die Ermittlung der Sterblichkeit aus den Aufzeichnungen der Bevolkerung Statistik*, published in 1868; and in the seventh chapter of the *Traité theorique et pratique de Statistique*, by Maurice Block.

The question of longevity commenced at a very early age to attract the attention of mathematicians. The Romans prepared for their use tables of survivorship; and in Italy, dating from the fifteenth century, bankers assured to young girls a dowry payable at the age of twenty, and equal to ten times the amount vested in their hands at their births, which sums remained the property of the bankers in cases where the girls died before attaining this age. In England, a merchant of London, named John Graunt profited by the bills of mortality of the city of London, which were first published in 1572, to draw up about the year 1662 a table that, owing to the defective nature of the data at his disposal, amounted to little more than a rough draft. Graunt's work was entitled *Natural and Political Observations upon the Bills of Mortality.* Although the lists of deaths in London did not show very clearly the ages at which they occurred, Graunt found that the rate of mortality was excessively high. For instance, out of 100 births the figures are as follows: 64 survivors at the age of 6 years, 25 at the age of 26, and 6 only at 56 years of age.

About the same time that Graunt's work was published, Pascal and Fermat laid down certain rules for the calculation of the probabilities of human life; and thirty years later the astronomer Halley took up the study of the problem at the request of the Government. He had at his disposal data superior in every way to those in the possession of his predecessors; they were derived from the lists drawn up by Caspar Neumann, showing the births and deaths in the city of Breslau during the quinquennial period 1687-91. He also derived considerable assistance from the death registers of the parish of Christchurch, and he drew up a table which bears his name, and which may be considered as the very *fons et origo* of all those that have been subsequently offered, while, in his character as savant, he carried his observations far beyond the practical end which had been proposed to him, and discovered in his work a means of affording a "clearer and truer conception of the state and condition of the human race." After the publication of Halley's work a large number of tontines were established, and for many years there was a wild speculation in this description of assurance in London. Daniel Defoe wrote a pamphlet on the subject in 1696. It was only after this mania had subsided in 1706 that the first English assurance company of any importance, the Amicable Life Association, was founded. In 1742 Simpson took up Halley's studies, and published a more practical theory of annuities and tontines; but in spite of these the Equitable Company, established in 1762 on the basis of the tables of survivorship, seriously compromised its credit by wild tontine speculations; and it was in great measure owing to these events that Price published in 1769 his observations on tontines and his "Northampton Table."

Jean de Witt, in 1671, and Kerseboom, in 1742, followed in Halley's footsteps, but they made less use of the death registers than of the lists of annuitants and of life assurance records. After them came Deparcieux, whose data were supplied by the death registers of the shareholders in the tontines established by Louis XIV during the German wars of 1689-96. Deparcieux had at his disposal 9,320 observations arising from the two tontines of 1689 and 1696, and various observations arising from the tontines of 1734. He was however only in possession of groups of ages of quinquennial periods, and not of the precise ages which necessitated his proceeding by interpolations and by adjustment. He assumes the number 1,000 as the radix at the age of 3, and drew up his table which he published in his *Essai sur les probabilités de la vie humaine*, and which has since been known as Deparcieux's table. It is distinct from a double table of survivorship which he drew up from data supplied by the death registers of monasteries and convents, and in which he has shown that nuns live to a greater age than monks—which is in accordance with recent observations—and that the latter were at first better chosen lives than the tontine shareholders, but that after 45 or 50 years of age the peculiar disadvantages of their situation began to operate sensibly upon their vitality, and impaired it considerably towards the close of life.

After Deparcieux came Wargentin, who had at his disposal in Sweden the two elements of a census enumeration (the first census of Sweden was taken in 1749) and the registers of births and deaths, and was thus enabled to produce in 1766 the first table constructed according to the demographic method. It appears that it was even at Wargentin's suggestion that an annual return of deaths according to age and a triennial return of survivorship by ages were prepared. Wargentin derived considerable assistance from the parish registers and the three census enumerations of 1757, 1760, and 1763, and his work was published in the Memoirs of the Academy of Science of Sweden.

In France Dupré de St. Maur, taking as his basis of observation the death registers of three parishes in Paris, and twelve parishes in the suburbs of that city prior to the year 1749, drew up a table which was published in 1769 in Buffon's work upon man, and which appeared later, after revision by Saint Cyran, in the *Probabilités de la vie humaine.* Dupré de St. Maur takes 23,394 persons living at 0 years as the starting point, and continues until the age of 100 years is reached, with 7 survivors only left, 5 of whom died during the course of that year. Again, Duvillard, the foundation of whose observations appear to have been the 101,542 deaths recorded by him in various districts in France previous to the Revolution, drew up a table which he published in 1806 in the *Tableau de l'influence de la petite vérole*, without clearly indicating the manner in which he arrived at his conclusions.

These facts notwithstanding, the demographic method could not be said at this period to be in use, the materials supplied by the census being much too meagre and unsatisfactory to tempt statisticians. After Laplace, the savant Fourier, in a memorandum which only attained notoriety after his death, and Moser, in his work on the laws of the duration of human life, going back to the principle adopted by Wargentin, laid down certain fixed mathematical rules for the construction of these tables. These were revised by Quetelet, and applied by him when drawing up the table of survivorship of the Belgian population according to the returns of the civil condition from 1841 to 1850, and to the census of 1846. Baumhauer, in the same way, prepared a table for the Netherlands by the aid of the death registers of 1840-51 and of the census of 1849. Dr. Farr in England constructed several tables, based upon the census returns of 1841 and 1851, and on the deaths of 1838-54; and these enjoyed a considerable reputation, being looked upon as models of their kind. Before Dr. Farr, John Finlaison, actuary of the English national debt, assisted by the registers of tontines and life annuitants in England, drew up and published in the year 1829 certain tables remarkable for their extremely low death-rate, and which have been in constant use up to the present time. Finlaison's tables were established from observations relative to 18,798 shareholders in tontines and to 6,679 deaths.

In France, after Demonferrand, who published his table in 1838, constructed on the basis of the dates of births and deaths of

5,952,352 men, and 5,840,937 women, during the period 1817-32, the results of the French census of 1821-31, and 1836, and the conscription lists of 1815-31, Dr. Bertillon, who took the average of the three censuses of 1851, 1856, and 1861, as establishing the population according to ages, drew up the best table of the survivorship of the French population that has been produced, and the three tables drawn up by the French Statistique Générale for the periods 1861-65 and 1877-81, although representing a much smaller amount of labour, are still of considerable interest for purposes of comparison. Dr. Bertillon's first tables, those relating to the period 1840-59, were published in the *Compte Rendu du Congrès Médical de Bordeaux*, and in the Paris Statistical Society's Journal for March, 1886. The second tables, those relating to the period 1856-65, appeared in the *Bulletin de la Commission Centrale de Belgique*, vol. xii, and afterwards in the *Tables de Mortalité et leur Développement*.

In Germany, Dr. Hermann and Dr. Becker (1834-70), in Sweden, Dr. Berg (1861-70), and in Norway Dr. Kiaer (1856-65) and others have laboured to the same end, each one however introducing some change or modification into the system employed, and their efforts have succeeded in adding to the value and usefulness of statistics by furnishing tables by means of which it is possible to compare the vitality of a large number of European States.

We now propose to devote some consideration to the study of the tables of survivorship, particularly from the point of view of French demography, and consequently to obtain some idea of the duration of human life at different ages, and of the difference effected by time or the condition of the persons themselves upon this duration. With this object in view we cannot do better than compare four tables, which, although composed of widely differing elements, represent in some degree the French vitality at four different periods. These tables are Dupré de St. Maur's, Duvillard's, Demonferrand's, and Bertillon's, the latter being compared with the estimates made by the Statistique Générale, which relate to two of the most recent periods:—

Tables of Survivorship of the French Population.

Ages.	Dupré de St. Maur (before 1750)	Duvillard (before 1789).	Demonferrand (1817-32).	Bertillon (1856-65).	Statistique Générale de la France.		
					1861-65	1877-81.	
	Both Sexes.	Both Sexes.	Both Sexes.	Both Sexes.	Both Sexes.	Males.	Females.
0......	1,000	1,000	1,000	1,000	1,000	1,000	1,000
5 yrs.	540	583	707	710	694	716	744
10 ,,	484	551	668	681	668	693	719
15 ,,	472	529	647	664	651	680	703
20 ,,	449	502	624	642	628	660	680
25 ,,	419	471	587	611	599	631	657
30 ,,	388	438	560	584	574	602	626
35 ,,	355	404	536	559	548	574	596
40 ,,	314	369	510	533	534	543	567
45 ,,	279	334	482	504	496	512	539
50 ,,	242	297	449	473	467	476	507
55 ,,	212	257	410	436	429	433	470
60 ,,	168	213	365	389	385	383	425
65 ,,	135	166	300	326	323	320	362
70 ,,	90	118	229	249	250	245	291
75 ,,	52	72	148	165	168	161	199
80 ,,	23	35	76	89	88	86	113
85 ,,	10	12	28	37	30	32	45
90 ,,	3	4	8	11	6	10	14
95 ,,	1	1	—	—	—	—	—

It should be observed that the first three tables having been constructed from materials furnished by the registers of deaths alone, and without the assistance of the census returns, show results only partially comparable with the four last tables, which have been prepared according to the demographic method. The progress made however is incontestable, and is in harmony with the conclusions we are enabled to draw from observations of the data of a past age. Is it however as great as that shown by a comparison of the tables of Dupré de St. Maur and Bertillon? for we find that not only at the tenth year of life we are able to preserve 21 children out of a 100 more than we did formerly, but that during the period characterised by the lowest mortality, namely, from 10 to 50 years of age, half of the survivors previously died off, while at the present day they are only reduced to the extent of a third, and further that after the expiration of half a century the generation was originally reduced to a quarter of the births, namely, 242 instead of 476 as at present; and can it be possible that there are four times as many octogenarians at the present day as there were during the period over which Dupré de St. Maur's observations were extended? Everything appears to point to the probability of a miscalculation. The restricted number of elements at the disposal of the eighteenth century academicians, the districts of Paris and the suburbs which supplied them with their materials, and the hygienic conditions which were certainly not the most favourable in the country, in themselves furnish a reason for doubt, and this is confirmed when we compare Dupré de St. Maur's table, calculated on the basis of the deaths occurring prior to 1750, with the tables prepared before 1784 relating to foreign countries, and dealing also with data derived from observations extending over a certain district, region, or State.

Halley, although he dealt with materials furnished by a German town in the seventeenth century; Sussmilch, who worked in the eighteenth century, and whose table was revised by Baumann in 1775, that is to say a very short time after Dupré de St. Maur; Wargentin, who discovered his materials in the census returns and in the parish registers of Sweden in the middle of the eighteenth century, all found a mortality much lower than that shown by Dupré de St. Maur, as the following statement will show:—

Number of Survivors at each Age.

Years.	Dupré de St. Maur. Before 1750.	Halley, 1687-91.	Sussmilch. Before 1775.	Wargentin, 1757-63.
0	1,000	1,000	1,000	1,000
10	484	661	532	611
20	449	598	491	570
30	388	531	439	519
40	314	445	374	459
50	242	346	300	385
60	168	242	210	293
70	90	142	112	175
80	23	41	37	56

It would therefore be better to confine our observations to the tables of Duvillard and Bertillon. The former relates to the period antecedent to 1789, and between the dates at which these two tables were constructed there was little more than a difference of sixty years, about two generations; but the changes that had taken place in France during this period in the social economy of the country, and in the development of wealth, sufficiently explain the difference in the results. It is chiefly in infancy that it is more particularly noticeable: according to Duvillard the number of deaths at 5 years amounted to 42 per 100 births, while Bertillon gives it as 29 per 100. The number of infantile deaths has not therefore decreased in France solely because there is a diminution in the birth-rate, but rather because infant mortality is in itself actually lower. The difference appears again at later periods of life, for example, in Duvillard's table, taking the periods comprised between the ages of 15 and 65, which may be considered as the active period of life, the loss is represented by a proportion of 69 per cent., while Bertillon gives it as 51 per cent. only. Finally, from 65 to 80 years of age the loss according to Duvillard is 81 per cent. as compared with 88 per cent. shown by Bertillon. Death must undoubtedly end by seizing its prey, but it is as well to defer the evil day as long as possible, and it is therefore satisfactory to find the highest mortality at the most advanced ages.

Coming next to the question of the relative longevity of the selected classes in France, we find that Deparcieux was the first to draw up a table of survivorship in that country, which he constructed from observations of the nominees of tontines and consequently select lives. This term is used to describe a particular group of individuals, such for example as annuitants or persons who have assured their lives, and a distinction must necessarily be drawn between these and unselected lives, that is to say persons taken indiscriminately from the mass of the population. In Deparcieux's table the mortality is less rapid and lower at all ages of life than in Duvillard's. In all ages annuitants, by reason of their security against exposure to poverty, have been placed at a considerable advantage over the generality of men as regards the risks of mortality. "A given number of annuitants," said Deparcieux, "as a general rule will live much longer than the same number of persons taken indiscriminately from the community at large." The same may with equal truth be said of persons who have assured their lives. They have been prudent, and have provided for the future of those who are dependent upon them. It must however be admitted that persons assured in life offices are distinguished by a higher mortality than annuitants, one reason being that the latter are more disposed to invest their savings in a life income when they anticipate a long life to enjoy it, while the former are in many cases prompted to insure when they feel that their hold upon life is a somewhat insecure one.

The following table will show the various laws of mortality in operation among select classes of people in France, in all cases, with the exception of the three French companies, 1,000 being assumed for the number of those completing their third year of life and also of those completing their fiftieth.

Years.	Annuitants.					Pensioned Civil Servants, 1871-77.		Pensioned Widows, 1871-77.		Members of the Institute Deceased between 1795 and 1869.		Persons whose Lives were Assured in Various Offices. Kertanguy's Table, 1837-72.	
	Deparcieux, 1689-1742.		Beauvisage, 1793-1864.		Three French Companies, 1860.								
3	1,000	—	1,000	—	—	—	—	—	—	—	—	—	—
5	948	—	982	—	—	—	—	—	—	—	—	—	—
10	880	—	960	—	—	—	—	—	—	—	—	1,000	—
15	848	—	937	—	—	—	—	—	—	—	—	—	—
20	814	—	906	—	—	—	—	—	—	—	—	955	—
25	774	—	865	—	—	—	—	—	—	—	—	917	—
30	734	—	828	—	—	—	—	—	—	—	—	893	—
35	694	—	797	—	—	—	—	—	—	1,000	—	859	—
40	657	—	773	—	—	1,000	—	1,000	—	964	—	824	—
45	622	—	734	—	—	816	—	939	—	930	—	785	—
50	581	1,000	701	1,000	1,000	659	1,000	875	1,000	894	1,000	729	1,000
55	526	905	641	927	931	562	853	808	923	819	916	667	915
60	463	797	580	838	852	483	732	738	843	744	832	598	820
65	395	679	498	720	756	402	610	650	743	638	714	489	668
70	310	534	395	571	633	310	470	536	612	505	565	362	497
75	211	363	275	397	473	190	288	393	449	374	418	218	299
80	118	203	178	225	302	120	182	248	283	240	269	110	151
85	48	83	65	94	147	52	78	125	143	95	106	60	82
90	11	19	18	—	—	16	24	42	48	30	33	16	21
95	—	—	3	—	—	4	6	10	11	7	8	—	—
00	—	—	—	—	—	0·5	1	3	3	—	—	—	—

In Deparcieux's table the loss is established at the rate of 1½ per cent. from 5 to 20 years, at 4½ per cent. from 20 to 60 years, and at 7½ per cent. from 60 to 80; while in Duvillard's table at the same periods it is given at 1·4, 5·8, and 8·4 per cent. At the age of 58 years Deparcieux shows a survival of more than half a generation, while Duvillard maintains that those who survive the age of 3 are reduced by half before attaining their forty-ninth year of life. A comparison of Bertillon's and Beauvisage's table, and that based upon the experience of the three French companies exhibits the same results. According to the former 2·7 per cent. die off between the ages of 20 and 50, and 8·1 per cent. between 50 and 80; the second shows a loss respectively of 2·4 and 7·8 per cent., while the third shows a loss of only 7 per cent. between the ages 50 and 80. An undue importance should not however be attached to a comparison of this nature, for the following reason, that the tables of select lives commencing only with the third year of life, do not take into account that period of early infancy which is characterised by a high rate of mortality even among the well-to-do classes.

Having drawn a comparison between the tables based upon a population taken at hazard, and those prepared from observations of select lives, it may not be uninteresting to compare these latter among themselves. For example, Deparcieux's table, the data for which were supplied by observations made at the commencement of the eighteenth century, and Beauvisage's, which was drawn up at the end of the same century and in the first half of the nineteenth, may be compared with the tables prepared on the basis of the experience of three principal French life companies, those relating to the civil pensioners of the State deceased between the years 1871 and 1877, and to the members of the Institute who died during the period comprised between the years 1795 and 1869.

The two tables constructed by Deparcieux and by the three French companies are regarded as models of their kind, and are accepted as authorities in France. The former is used to calculate the value of life annuities, and the latter is the one which expresses the most accurately the mortality of the annuitants, and most nearly resembles the table constructed from the experience of twenty English assurance companies which was drawn up under somewhat similar circumstances. Between the two there is an appreciable difference: in the latter the mortality is less pronounced at all ages, while in Kertangny's table, which certainly deals with a different class of people, it is lower during the first fifty years of life.

Beauvisage's table, Kertangny's and that of the three French companies, although exhibiting certain variations undoubtedly interesting from an actuarial point of view, are not of sufficient importance from a demographic point of view to warrant us in deducing any conclusions in favour of a prolongation of the average life. It may be observed that if the mortality as shown in Kertanguy's table is much less rapid than that established by the three French companies, it may be accounted for by the fact that the former was drawn up from life assurance records, and the latter from observations of those who invested in life annuities. As a rule those who purchase annuities generally make up their minds to do so at an advanced period of life—say from the ages of 50 to 65—and their determination is probably influenced by the fact that finding themselves in a good state of health, and anticipating many years of life still before them, they are desirous of investing their little capital as profitably as possible; if on the other hand they had any reason to fear that their health was seriously impaired, they would hesitate a long time before doing so. Life annuitants therefore, taking those between 60 and 75 years of age, have a greater longevity than persons who have insured their lives. The latter most frequently do so when still young, because the premiums are lower, and they have no reason to believe that their own are better than the majority of selected lives. Again, it sometimes happens that persons knowing themselves to be threatened by some disease, and being determined to insure their lives, occasionally succeed in doing so by deceiving the doctor appointed to examine them. This however is an exceptional case, the medical inspection being generally sufficient to insure the rejection of any dangerous life, and this is one of the principal reasons why persons who have insured really constitute *chosen lives.*

The table relating to the civil pensioners of the State exhibits a mortality much higher than is to be found in the others, but the fact must not be lost sight of that the limit of age at which men were retired from the service being 55, and in some cases 60, those who retired before, and many who were pensioned at the expiration of their term of service were probably in feeble health; and it may be added that the sudden change from active life, and the difference effected in the material well being of the retired civil servant, are both conducive to a shortening of life. The opinion is rife among business men, and it has perhaps been confirmed by experience, and also by Kertanguy's table, that after having looked forward for many years to the time when they could retire and live on the fruits of their industry, few live to enjoy their rest and ease for more than a very short period after their retirement.

In Kertanguy's table the annual mortality is about 14 per 1,000 in the lives of 50 years of age, while in the case of retired civil servants it is at the rate of 66 per 1,000. Nevertheless, when the latter have passed the dangerous period, that is to say, starting from the age of 70, their resistance to death is not less successful than that of Deparcieux's tontine nominees and Kertanguy's assured lives, and their vitality like that of the annuitants becomes sensibly greater than that of the population generally.

Widows in the receipt of pensions not being subject to the same causes of death as their husbands who have retired from active life, and in common with all women having a remarkable and decided advantage in favour of longevity, compare as regards mortality very favourably with all the tables given above, and the same may be said of the members of the Institute, who take the first rank.

In comparing the death-rate of the select lives, even that shown in Kertanguy's table where the mortality is nevertheless the highest, with that of the French population generally it will be observed that the superiority of the chosen lives is very marked at all ages except at the extreme limit of life.

Number of Deaths per Thousand at each Age.

Ages.	Of the French Population, 1877-81.	Ages.	Of Selected Classes.		
			Deparcieux.	Kertanguy.	Civil Pensioners.
	Years.		Years.	Years.	Years.
40 to 45....	11	40	10	9	33
50 ,, 55....	17	50	17	14	66
60 ,, 65....	33	60	28	35	48
70 ,, 75....	76	70	61	51	61
80 ,, 85....	171	80	144	90	129
90 ,, 95....	268	90	363	—	249

Similar results have been found in Italy, as the subjoined statement will show:—

Number of Deaths per Thousand at each Age.

Ages.	Of the Italian Population, 1872-77.	Of Civil Pensioners, 1868-77.
40—45...............	14	14
50—55...............	23	22
60—65...............	43	40
70—75...............	96	76
80—85...............	180	154
90—95	226	211

Coming next to the question of French longevity as compared with that of other countries, we have already observed that there has been a considerable diminution of mortality in foreign countries as well as in France. For a proof of this we may refer to the two Swedish tables, prepared respectively by Wargentin in 1766, and Dr. Berg in 1855-60, and to a comparison of the two tables published in the Netherlands, the one by Baumhauer, referring to the period 1840-51, and the other by Von Pesch, to the period 1870-80. These four tables have all been drawn up according to the demographic method.

Ages.	Netherlands.		Sweden.	
	Baumhauer, 1840-51.	Von Pesch, 1870-80.	Wargentin, 1757-63.	De Berg, 1861-70.
0	1,000	1,000	1,000	1,000
10	644	654	611	737
20	630	620	570	703
30	568	566	519	656
40	502	515	459	593
50	434	494	385	511
60	310	357	293	401
70	182	224	175	246
80	58	76	56	78
90	4	67	—	—

The French population has a vitality differing very slightly from that of the English, the latter being greater up to the 45th year of life, and less from the 45th to the 75th; from the Belgian, which is however somewhat at a disadvantage at all ages, and from the Dutch and Swiss populations. In Prussia the mortality is slightly higher than in France, while in Bavaria it is very much more serious, although the demographic conditions of the latter country have very considerably improved since Dr. Hermann constructed his tables (1854-67) to which we refer below. As regards the Scandinavian countries France is at a decided disadvantage as regards longevity. A reference to the following statement will show a comparison of the tables of survivorship constructed on the demographic system which confirm the preceding observations on the respective mortality of various European States:—

Ages.	France. Bertillon's Table, 1856-65.	England. Farr's Table, 1848-54.	Bavaria. Hermann's Table, 1834-67.	Norway. Kiaer's Table, 1856-65.	Belgium. Quetelet's Table, 1841-50.
0....	1,000	1,000	1,000	1,000	1,000
10....	681	703	568	780	689
20....	642	663	536	742	635
30....	584	604	485	691	573
40....	533	539	431	635	511
50....	473	464	368	570	440
60....	389	370	280	486	345
70....	249	238	159	349	216
80....	89	89	45	157	75
90....	11	11	7	26	9

The very high rate of infant mortality in Bavaria is the principal cause of the Bavarian inferiority in the matter of vitality, for we find that during the first five years of life, 404 children out of every 1,000 died; while the low infant mortality, on the contrary, which distinguishes the Scandinavian countries, accounts in great measure for the Norwegian superiority, the latter country exhibiting at all ages a greater number of survivors than the other States.

Between the tables constructed upon picked and chosen lives the differences between one country and another are as a general rule much less marked than those found in a comparison of the tables constructed from the registers of deaths of the population generally. A reference to the subjoined statement will show a comparison of Deparcieux and Kertanguy's tables, those based upon the joint experience of twenty different English life companies, the Gotha life table, which was constructed from observations extending over fifty years (1829-78), and which deals with 85,321 assurance cases and 22,017 deaths, and Homan's table for the United States, constructed from the experience of the Mutual Assurance Company of New York, and which was published in 1868.

Ages.	Deparcieux's Table (1746).	Kertanguy's Table (1874).	Twenty Life Companies' Experience (1869).	Homan's Table (1868).	Gotha Table (1880).
10 years....	1,000	1,000	1,000	1,000	1,000
20 ,, ...	924	954	955	926	952
30 ,, ...	832	893	890	854	883
40 ,, ...	769	824	813	781	792
50 ,, ...	667	729	718	698	689
60 ,, ...	527	598	585	579	548
70 ,, ...	332	362	380	385	368
80 ,, ...	133	110	141	145	125
90 ,, ...	—	—	16	84	2

Taking next into consideration the relative vitality of the two sexes, we find that the tables of survivorship prove very clearly that in nearly every case, and in almost every country, there is at all periods of life a remarkable and decided advantage in favour of the woman. We say in *nearly* every case, as the table constructed from the experience of seventeen English life companies shows that from the 20th to the 50th year of life the death-rate is higher for women than men, while from the latter period women again commence to resume their advantage. We have already called attention to the superiority of women over men in the matter of longevity, and fresh confirmation of this is shown by the subjoined tables, which show for various countries the number of survivors of each sex at each decennial period of life.

Ages.	France. Bertillon (1856-65).		Norway. Kiaer (1856-65).		Bavaria. Hermann (1834-67).		Prussia. Becker.		Town of Berlin. Bock (1876-79).	
	Men.	Women.	Men.	Women.	Men.	Women.	Men.	Women.	Men.	Women.
0........	500	500	500	500	500	500	500	500	500	500
10 yrs.	314	347	386	394	271	297	313	326	254	274
20 ,,	310	326	367	375	255	281	298	310	233	263
30 ,,	287	297	339	352	229	256	274	288	224	245
40 ,,	264	269	311	324	205	226	248	258	197	220
50 ,,	233	240	278	292	176	192	213	225	159	195
60 ,,	190	199	233	253	135	145	163	178	115	161
70 ,,	120	129	163	186	78	81	97	109	64	109
80 ,,	42	47	70	87	22	23	29	32	20	42
90 ,,	4	7	10	16	3	4	2	3	1	4

The results as shown above would be somewhat different if account were taken of the excess of male births, as Dr. Farr has done in his tables. Thus in these tables which give as their starting point 512 men and 488 women, making a total of 1,000 persons, we find up to the fiftieth year of life a numerical superiority in favour of the male sex (1,233 men and 231 women), but from the fifty-third of life the female sex had the advantage (220 against 219).

By the aid of tables of survivorship we are enabled to calculate the chances of life at each age, and among other results we can estimate the *probable life* and the *mean life.* By probable life must be understood the term at the expiration of which the numbers attaining to that age will be reduced to one-half, and to which it is therefore equally probable that a person living at the former age will or will not attain. If, for example, we desire to know the probable life of a person of 25 years of age, according to Bertillon's table we first note the number of survivors at that age, that is, 611. It is then only necessary to discover when this number is reduced to 305, which is between the ages of 66 and 67, to enable us to say that the probable life at 25 years of age is about 41 years. In this same table it will be seen that out of 1,000 births there are only 504 survivors at 45 years of age and 498 at 46; there is therefore for each of the 1,000 persons appearing at the commencement of this table an equal chance of being alive or dead before this 46 years is reached, and that is why the probable life at birth according to this table is given as 45 years 8 months. The same table gives 739 survivors at 3 years of age, and 253 at 69; so that a child has at birth three chances of living against one of dying before attaining the third year of life, and one chance of living to three of dying before the age of 69.

The *mean life*, to which the English apply the expressive term, *expectation of life*, is according to M. Dormoy's definition, the time that all persons of a given age would live if the sum of the years remaining to them were equally divided amongst them; it is then the number of years of life still remaining, on the average, to a person of a given age, or the number of years lived, on the average, by those who are dead. The mean life therefore really represents the vitality properly so called. It is obtained by adding together the years lived by all the persons over whom the observations are extended, and by dividing the sum of these by the number of these individuals, the quotient representing the expectation of life.

The mean life and the probable life are two measures for estimating the vitality of a population which are sometimes capable of producing widely different results. For the sake of example let us suppose that out of 1,000 persons born half die before attaining their first year, and the other half prolong their existence until the seventieth year without experiencing any loss in the interval, the probable life in this case would be one year, and a mean life of thirty-five years and a half.

Dr. Bertillon obtaining his materials from the condition and the movement of the population from 1840 to 1849, calculated the duration of life in France during that period according to various formulas. He very justly observes that many of the methods employed by him are defective, and that in every case the results differ so widely as to render abortive any attempt to compare the mean life obtained by one of the systems with that obtained by another. The first result, namely forty years, as shown in the accompanying table, and obtained by adding together the total number of the years lived by a number of deceased persons, grouped according to ages, and dividing the sum of these years by the number of those who lived them, is the one which is considered to most approximately represent the true *mean life* of the French population during the period comprised between 1840 and 1849.

The number of years lived by the persons over whom Dr. Bertillon's observations were extended amounted to 38,382,388, and the number of deaths to 958,000.

	Number of Years.		
	Men.	Women.	Both Sexes.
Mean life	39·3	41·0	40·0
Probable life	42·2	46·3	44·3
Average age of deaths according to civil registers, *i.e.*, the number of years lived by the deceased, divided by the number of deaths	34·2	37·3	35·6
Relation of the population to the average of the births and deaths	39·7	41·3	40·7
Relation of the population to living births	36·9	39·2	38·0

From the evidence in our possession respecting the estimate of the mean life by the ancients, it would appear that it was very much lower than that established by modern tables; but without going back to antiquity, it may not be uninteresting to compare the mean life as shown in the tables of Duvillard, Demonferrand, Bertillon, and the Statistique Générale de France. At 20 years of age each individual belonging to the generation for which Duvillard calculated the longevity had an average life before him of 35½ years, while the Statistique Générale tables (1877-81) gave the duration as 40½ years for men and 42 for women. The chances therefore of living during the most active period of existence, and that which is of the greatest economic value, have increased by more than five years, and this is a result which, without being mathematically correct, is well established, since Demonferrand and Bertillon agree with Duvillard and the Statistique Générale in confirming it. It may then be taken for granted that the expectation of life for the period 1877-81 is greater than in 1789, and consequently if this superiority cannot be exclusively attributed to the diminution of the birth-rate, as might be supposed if it was only a question of a general average for the whole of the population, the increase in the mean duration of life necessarily results from a diminished mortality, which is apparent from an examination of these tables of survivorship.

In the case of Sweden and Norway we have compared tables which did not differ very materially in their results. Halley's table, which is also an index of the mortality of a past age in a German town, shows a mean duration of life almost identical with that given in Duvillard's table, and which is generally lower than that established by Dr. Becker in his tables relating to the Prussian population.

Dr. Bertillon is not the only statistician who has exposed the inaccuracies of general averages. Many others have shown what little reliance is to be placed upon indications furnished by a comparison of the mean duration of life, when it is calculated for a total population at different periods, because it only requires, as we have pointed out, a diminution of the birth-rate, and as a natural consequence a smaller number of children dying in early infancy, to increase the mean duration of life without any real amelioration being produced in the actual vitality of the population.

M. Legoyt, calculating the mean life according to the average ages of deaths, found the following results:—

Period.	Mean Duration of Life.	
	Years.	Months.
1806–10	31	6
'11–15	31	10
'16–20	31	10
'21–25	31	5
'26–30	32	5
'31–35	33	6
'36–40	34	11
'41–45	35	–
'46–50	36	–
'51–55	36	8
'56–60	36	4
'61–65	36	5

He added that it was incontestably proved that the French population enjoyed a greater vitality at the latter period over which his observations were extended, than at the commencement of the century. There certainly was an increase of vitality, but not to the extent assumed by Legoyt. A reference to the following table shows the results when his system is applied both to the urban and rural population:—

Average Age at which Deaths occurred.

	Period, 1853-55.		Period, 1861-65.	
	Years.	Months.	Years.	Months.
Department of the Seine	29	8	32	–
Urban population	34	7	34	8
Rural ,,	38	5	37	7

M. Legoyt failed to add that large building operations attracted many of the adult population to Paris, that the composition of the population had greatly changed, and that it was only natural that there should have been an increase in the average ages at which death occurred. The expectation of life at different periods of age is however a more precise measure, for the reason that it is obtained by the proportion of the deaths of each group of ages to the number of persons comprised in these groups.

That the mean life of select classes is greater than that of the population generally is what we already know. An examination of the tables given below shows besides that it is always lower in Deparcieux's table than in Beauvisage's or Kertanguy's, that is to say, less for the nominees to the tontines than for those who have assured their lives, and the greatest longevity appears to be among the members of the Institute and widows in the receipt of pensions.

Expectation of Life in France as compared with other Countries.

FRANCE. *Total Population.*

Ages.	Duvillard, 1789.	Demonferrand, Males, 1817-37.	Bertillon, 1856-65.	Statistique Générale de France, 1877-81.			
				Males		Females.	
				Yrs.	Mos.	Yrs.	Mos.
0	—	—	39·1	40	10	43	5
5 years	43·4	—	51·7	51	7	53	–
10 ,,	40·8	—	48·7	48	3	49	9
15 ,,	37·4	—	44·8	44	1	45	1
20 ,,	34·3	40·0	41·2	40	5	42	3
25 ,,	31·3	—	38·2	37	2	38	8
30 ,,	28·5	34·1	34·7	33	11	35	6
35 ,,	25·7	—	31·1	30	4	32	2
40 ,,	22·9	27·0	27·3	26	11	28	7
45 ,,	20·1	—	23·7	23	3	25	–
50 ,,	17·2	19·9	20·2	20	–	21	5
55 ,,	14·5	—	16·7	16	8	17	11
60 ,,	12·0	13·3	13·6	13	7	14	7
65 ,,	9·6	—	10·9	10	1	11	7
70 ,,	7·6	8·1	8·3	8	4	8	1
75 ,,	5·9	—	6·8	6	4	6	1
80 ,,	4·6	4·8	4·4	4	10	5	–
85 ,,	4·2	—	3·6	4	2	4	–
90 ,,	3·8	3·2	3·2	3	6	2	1
95 ,,	—	—	0·5	2	7	1	3

OTHER COUNTRIES. *Total Population.*

Ages.	Breslau. Dr Halley, 1687-91.	Belgium. Quetelet, 1841-50.	England. Dr. Farr, 1838-54.	Prussia. Dr. Becker.	Norway. Dr. Kiaer, 1856-65.	United States. Elliot, 1870
0	—	37·4	40·9	36·7	47·4	39·4
5 years	—	46·5	—	—	53·7	48·1
10 ,,	—	43·8	47·4	44·8	50·8	45·3
15 ,,	—	39·9	—	—	46·9	41·5
20 ,,	33·5	36·4	39·9	37·5	43·2	38·2
25 ,,	—	33·5	—	—	39·7	35·3
30 ,,	27·2	30·5	33·3	30·6	36·3	32·4
35 ,,	—	27·7	—	—	32·7	29·4
40 ,,	21·6	24·8	26·7	23·8	29·1	26·4
45 ,,	—	21·9	—	—	25·6	23·4
50 ,,	16·1	18·9	20·1	17·1	22·0	20·0
55 ,,	—	15·5	—	—	18·5	17·2
60 ,,	11·8	12·4	13·9	11·2	15·2	14·2
65 ,,	—	10·1	—	—	12·1	11·4
70 ,,	7·0	7·5	8·7	7·4	9·4	9·0
75 ,,	—	6·6	—	—	7·3	6·8
80 ,,	3·8	5·2	5·1	4·8	5·4	6·0
85 ,,	—	3·8	—	—	4·1	4·2
90 ,,	—	3·1	2·9	3·0	3·3	3·6
95 ,,	—	1·9	—	—	2·6	3·0

Expectation of Life in France as compared with Other Countries—Contd.

FRANCE. *Select Lives.*

Ages.	Nominees of Tontines.		Assured Lives. Kertanguy, 1874.	Widows in Receipt of Pension.	Members of the Institute, 1795-1869.
	Deparcieux, 1746.	Beauvisage, 1867.			
0	—	—	—	—	—
5 years	48·3	54·1	—	—	—
10 ,,	46·8	50·1	—	—	—
15 ,,	43·5	46 3	—	—	—
20 ,,	40·2	42·8	41·9	—	—
25 ,,	37·2	39·8	58·5	—	—
30 ,,	34·1	36·4	34·5	—	—
35 ,,	30·1	32·7	30·7	—	33·5
40 ,,	27·4	28·9	26·9	29·3	29·7
45 ,,	23·9	25·1	23·2	26·0	25·7
50 ,,	20·3	21·5	19·7	22·8	21·6
55 ,,	17·3	17·9	16·3	19·4	18·4
60 ,,	14·2	14·6	12·9	16·0	15·0
65 ,,	11·2	11·6	10·3	12·9	12·0
70 ,,	8·6	8·9	8·1	10·1	9·6
75 ,,	6·5	6·7	6·5	7·8	7·0
80 ,,	4·7	5·0	5·6	5·8	5·3
85 ,,	3·2	3·7	3·2	4·3	4·2
90 ,,	1·2	2·7	1·8	3·4	2·7
95 ,,	—	—	—	3·3	—

OTHER COUNTRIES. *Select Lives.*

Ages.	Experience of Twenty English Companies, 1869.			English Government Pensioners, 1883.		Gotha Table, 1880.	American Table, Homan's, 1868.
	Both Sexes.	Male.	Female.	Male.	Female.		
0	—	—	—	—	—	—	—
5 years	—	—	—	—	—	—	—
10 ,,	49·9	—	—	—	—	—	48·7
15 ,,	45·9	—	—	—	—	46·5	45·5
20 ,,	42·0	—	—	—	—	42·2	42·2
25 ,,	38·4	—	—	—	—	38·6	38·8
30 ,,	34·7	—	—	—	—	34·7	35·3
35 ,,	31·1	—	—	—	—	30·8	31·8
40 ,,	27·6	27·4	28·3	26·0	29·8	26·9	28·2
45 ,,	24·0	23·8	25·0	23·1	26·4	23·1	24·5
50 ,,	20·5	20·3	21·6	20·3	22·9	19·5	20·9
55 ,,	17·1	17·2	18·2	17·3	19·6	16·1	17·4
60 ,,	14·0	13·8	14·9	14·4	16·3	12·9	14·1
65 ,,	11·2	11·0	11·8	11·7	13·2	10·1	11·4
70 ,,	8·7	8·5	9·1	9·3	10·3	7·8	8·5
75 ,,	6·6	6·4	6·9	7·3	8·0	5·9	6·3
80 ,,	4·9	4·7	5·5	5·7	6·1	4·2	4·4
85 ,,	3·6	—	—	—	—	3·0	2·8
90 ,,	2·7	—	—	—	—	2·3	1·4
95 ,,	—	—	—	—	—	—	—

Intellectual labour undoubtedly fatigues the brain, and may become in course of time a cause of exhaustion and even of death, and yet the life of material ease and comparative tranquillity enjoyed by men of letters, who have no longer any necessity to struggle for the means of existence, in great measure counterbalances this disadvantage, and constitutes a social condition favourable to the prolongation of life, not sufficiently powerful however to give them the advantage in this respect over women, when the latter are in possession of sufficient means to place them beyond the reach of want. It is an open question whether the latter owe the advantage they possess to their sex, or to their mode of life. It may be due to both, for it is according to a law of nature that little boys die in greater numbers than little girls; and it may perhaps also be by a law of nature that women, although liable to a variety of slight ailments, enjoy a greater immunity from severe illness than men. But it is to the quiet life they lead, free from excesses of every kind, that in spite of the ailments to which we have referred, the perils of maternity, and other critical periods, women owe in very great measure their superior longevity.

There is relatively but little difference between the expectation of life in France and in other countries, but there is a very appreciable difference between Bavaria, which is the lowest in the scale, and Norway, which is the highest; and between the French and foreign tables showing the expectation of life among select classes, the variations are less striking than those shown by a comparison of the tables relative to the population generally.

By the expression duration of a generation may be understood either the average age of persons dying, or the longest duration of existence attained by the last survivor of a generation. In an estimate of the wealth of France, M. Vacher took thirty-one years, and M. de Foville thirty-three years, and later thirty-six years, as representing the average duration of a generation. The elements for forming an absolutely correct calculation of this duration are unfortunately wanting, and even if they were at hand they would not furnish the means of determining the difference in longevity between two periods, for the average ages of marriage and infant mortality are powerful factors in determining the latter.

As an example of the difference in the results according to the methods employed, we may quote the case of the Capet family. Princes, doubtless, have not the same conditions of life as ordinary persons; they generally marry earlier in life, and in spite of the wealth which they enjoy, they are more exposed by the abuse of the pleasures of life to special causes of decease. Notwithstanding this fact, the long duration of nine centuries and a half during which history has recorded the genealogy of the Capet family, gives to this example an importance which no other possesses. From the accession of Robert Duke of France, and grandfather of Hugues Capet, who was called to the throne in 922, until the death of the Comte de Chambord in 1883, there were in the space of nine hundred and sixty-one years two dukes of France, the former of whom, Robert, was king, thirty-four kings, and a pretender to the throne: in all thirty-seven princes who successively possessed the inheritance of the ducal or royal crown, that is, within a fraction, an average possession of twenty-six years, or about a quarter of a century; in other words, twenty-six years formed the duration of a generation, calculated according to the successions. But the succession to the throne is not always regularly from father to son. Robert was in direct line the twenty-ninth ancestor of the Comte de Chambord; so the nine hundred and sixty-one years divided by thirty give in round numbers thirty-two years, or about a third of the century as representing the average duration of a generation, calculated according to the time elapsing between the birth of the heir and the death of his father.

Coming next to the question of centenarians, we are in a position to affirm that fewer children die at the present day than formerly; but we cannot so confidently affirm that there are more old people, that is that a greater proportion of individuals of each generation survive to the normal extreme of life. It must be acknowledged that the contrary opinion, although without foundation in fact, is based upon a delusion natural to man. It is frequently found that old persons are in the habit of asserting that in the days of their youth the fields were greener and the sun warmer; they even sometimes assert that people lived then to a greater age. This may be accounted for by the fact that being old themselves they are not surprised at the longevity of octogenarians who are their own contemporaries; while when they themselves were only 15 years of age, they considered a man of 60, whom they now regard as being in the prime of life, a veritable Nestor; and the Nestors were not disposed to undeceive them. Again, old people have a habit of exaggerating their own age to such an extent that they frequently end by believing that they are really much older than they are. Biblical history teaches us that some of the patriarchs lived for nine hundred years. The question therefore that suggests itself is did the Bible count the months for the years, or did it attribute to one individual the duration of life of a whole family living under the patriarchal *régime*. The former supposition is a little improbable, as we notice two series, the one preceding the deluge, and which goes back to a very remote period, attributes a lifetime of nine hundred years to several of the patriarchs, and the other subsequent to the deluge reduces to a very marked extent the supposed duration of existence, and only attributes to Abraham a lifetime of one hundred and seventy-five years. Be this as it may, the problem is not one that rightly belongs to the domain of demographic science. The Hebrews, speaking at the time of David of their contemporaries, and consequently of those with whom they were personally acquainted, gave as the extreme duration of human life a period of seventy years, and in exceptional cases this was extended to eighty years, about the same as at the present day.

The only reliable data that we possess on the subject of centenarians is afforded by observations extending over comparatively recent periods, and the information that we do possess is not absolutely conclusive—Dupré de St. Maur found, particularly in Paris, a few centenarians, or reputed centenarians, while

Deparcieux, whose calculations were based on more reliable data, discovered none at all among the tontine shareholders or the religious communities. In his table of tontine nominees he gives 95 years as the limit of age, although in an examination of the details we find two members who lived to the age of 99, while again Beauvisage's table relating to retired civil servants and pensioned widows in France, and Finlaison's table, all record the existence of centenarians. Taking a more recent period, Duvillard, who derived his data from the parish registers, prolongs his table to 109 years, and includes 5 centenarians out of 1,000 births.

In Bavaria the census of 1871 recorded 37 centenarians, but the chief of the statistical bureau, M. Mayr, instituted a personal inquiry, by the aid of the civil registers, into the dates of birth of these old persons, and the result of his researches went to show that the majority of these so called centenarians only existed in their own imagination, and that only one person, a woman, had really lived longer than a century. About the same period Canada, which for a long time past has enjoyed a reputation for the longevity of its population, proceeded to an investigation of the same kind, and 421 persons were recorded as having lived over a hundred years. The government however were enabled to verify the actual facts in the case of 82 of these persons, and it was found that of this number 9 only, 5 men and 4 women, were really centenarians, the oldest being a woman, who died on the 20th February, 1739, at the age of 109 years, and a man, who died at Quebec on the 16th November, 1814, aged 113. It was found also that a man of 101 years of age was popularly supposed to be 110, and many persons whose age did not really exceed 80 were stated to be centenarians.

In conclusion we may observe that although centenarians may undoubtedly exist, they are in such very small numbers that with few exceptions one hundred years may be considered as the extreme limit of the life duration of a generation. As regards centenarians of the present time, an opinion should in no case be definitely expressed until after an examination of the registers of birth, while in the case of those of a past age, the records should be looked upon with some suspicion, and even if their accuracy should be conclusively established, the fact of a few old persons having exceeded 100 years would prove nothing for the average longevity of a population.

Since the census enumerations have established the ages of the population, it is observed that the number of persons over 60 years of age has greatly increased in France, that is all we can with certainty affirm, adding perhaps that this increased proportion of old persons in the total population is caused not only by the actual augmentation of this number, but by the relative diminution in the number of children who represent at the present day a smaller proportion of the total.

It has sometimes been asserted that the care by which so many children are now successfully reared has had for its effect the prolongation to the adult age of frail lives; thereby enfeebling the race by opposing the natural selection effected by death in early infancy. Be that as it may, this weakness, even if it exists, in no way prevents a robust constitution from attaining an old age, consequently it neither reduces our longevity nor does it condemn us to include in our ranks a smaller proportion of centenarians than our ancestors.

It would be inconsistent for science to constitute itself the echo of popular conjecture; when it is not certain of its facts it refrains from expressing a decided opinion. What it may however confidently affirm is (1) that the extreme duration of human life does not appear in times past to have differed in any material degree from that of the present day; (2) the mortality among children having diminished, their mean life has increased since the eighteenth century both in France and in other countries where reliable data on the subject are available; (3) the expectation of life in France appears to be slightly greater at the adult age in the case of the population generally; (4) the difference is much less noticeable in the case of select classes than of the population as a whole; (5) women have a greater expectation of life than men; and (6) social conditions exercise a considerable influence over the expectation of life at all ages.

II.—*The Official Statistics of Japan.*

The following memorandum is taken from the *Board of Trade Journal* for August, 1887. It refers to a recent donation to the Society, which is acknowledged in the usual quarterly list of "Additions to the Library," to be found on a subsequent page of the present number of the *Journal*:—

"The first number of the *Résumé Statistique*, or Statistical Abstract of Japan, has recently been issued by the Bureau Général de Statistique, which is attached to the Imperial Cabinet, or State office of that country. The information it contains is given in Japanese and French, side by side.

"In the preface or introduction, dated the 20th of March, 1887, it is stated that the collection of official statistics was first commenced in Japan in the year 1871. Mention is made also of Monsieur Maurice Block, a well-known French statistician in the employment of the Japanese Government, who represented that country at the International Statistical Congresses of 1875 and 1877. In 1881 a *Bureau Général de Statistique* was created, which was attached to the Council Office, and a Central Statistical Commission was appointed, consisting of delegates from each of the different ministries or departments.

"Four years later, namely, in 1885, this bureau was removed to the State office (Cabinet Imperial), and statistical secretaries were appointed to each of the different ministries to carry out the work of those departments.

"With regard to the statistical publications which have been issued, it is stated that there has appeared the *Annuaire Statistique du Japon*, which has now reached its fifth year; the information therein was however given in such detail, that the volume was found to be very bulky, and it was consequently decided in 1886 to publish the present *résumé* or abstract of the contents of the Annuaire. Hitherto official statistical documents have all been published in Japanese, but in the present volume it has been thought expedient to annex a French translation, the French language being chosen because that language has been adopted by the Statistical Congress for the publication of all international statistics.

"With regard to the contents of the volume itself, it will be found to give the weights, measures, and moneys of Japan, with their equivalents in French (decimal system) and in English. Also the area and population of the Empire, together with tables showing the births, deaths, and marriages.

"Under the heading of agriculture is given the production of rice and of corn, as well as of tea and of cane sugar, together with the results of a cattle census taken on 31st December, 1884. The area and produce of the forests is also given, as well as the produce of the seas, whether fish or other; the production of salt and of minerals, the latter being divided under the head of State products and the produce of private individuals, the chief minerals being coal and silver.

"Tables are also given showing the production of saké, a spirituous drink distilled from rice; and the wages of workmen in the large towns are also shown.

"With regard to commerce, which is divided under the heads of internal and external trade, there is considerable information. The details relating to internal commerce consist chiefly of average prices of leading articles, such as rice, barley, peas, and saké, and also of average rates of exchange; while under external commerce are given trade by countries and under chief articles, bullion and specie being separately distinguished. Further, the entries and clearances of shipping, both Japanese and foreign, are given for each year from 1880 to 1884 inclusive.

"Under the heading of 'Voies de Communication' are details relating to post offices, telegraph services, railways, mercantile marine, wrecks, lighthouses, and carriages for public hire.

"Banks, savings banks, assurance societies, and joint stock societies, each come under separate heads, as do also public assistance (charities), public health (including longevity), public worship, whether Shinto or Buddhist, public instruction, police, penitentiaries, civil and criminal justice, army and marine, finances, and miscellaneous statistics.

"As a whole, it may be added, the present abstract will compare favourably with the statistical abstracts issued by many European States, on the basis of which it has evidently been drawn up, and it promises to become a most useful compilation when it has reached a few years of publication, and the details can be given for a longer period. Even now, this new abstract is interesting, as showing the immense efforts which the Empire of Japan is making in order to put itself on a level with European countries in the matter of statistical science."

III.—*Notes on Economical and Statistical Works.*

Actes du Premier Congrès International d'Anthropologie Criminelle. Turin, Rome, Florence: Bocca Frères, 1886-87.

This volume is the outcome, as its title indicates, of the first International Congress of Criminal Anthropology. That congress was held, as we are told in the preface, at Rome in the November of 1885; and the duty of publishing an account of its proceedings devolved upon the committee which was intrusted with the preparations to be made for the meeting of the second congress at Paris in 1889. Some delay, however, has arisen in the publication in consequence of the laudable endeavours made by the editor to insure the accuracy of the reports of the papers and discussions by reference to the authors and speakers themselves. But the scrupulous fidelity with which he appears to have discharged his duties furnishes ample excuse for any delay that may thus have been occasioned; and we may, we think, heartily congratulate him upon the excellent example of editorial workmanship which the volume before us presents.

The idea of holding such a congress dates back, we are told (p. ix), to the year 1882; and its origin may be traced to an article contributed by S. Tommasi to the *Rassegna critica* edited by Professor Angiulli. In that article an endeavour was made to prove that the "irresistible force" compelling men to crime, to which appeal was so often made on behalf of unprincipled scoundrels, was to be found in the case of all crimes without distinction, and might be invoked on behalf of all criminals alike. One of the earliest adherents of the new Italian school thereupon wrote to M. Lombroso, who may perhaps be called the founder of the school, and suggested that a congress should be held where these and similar questions might be discussed; and urged that in this way an opportunity would be given to the "positive" school of asserting its tendencies, and of indicating the reforms it desired in penal legislation. After some delay—not unaccompanied by a little discouragement—the occasion of the meeting of the third International Penitentiary Congress was chosen as a suitable time for holding a congress dealing with subjects which were in some measure at least of a kindred nature; and in the November of 1885 the two congresses met at Rome. An exhibition was simultaneously opened in connection with the Anthropological Congress; and a catalogue of the articles exhibited—comprising collections of the skulls, the casts, and the photographs of criminals and epileptics, &c., together with a library of the publications of the Italian school—is appended to this volume The subjects discussed at the congress were divided into two main sections: the mornings were devoted to the consideration of criminal biology, and the afternoons to that of criminal sociology. Under the first of these two heads such questions were treated as these: (1) the proper classification of criminals, and their essential distinguishing organic and psychical characteristics; (2) the existence (if any), the origin, and the nature of the general bio-pathological character which predisposes to crime; (3) the classification of human actions with reference to the affections which determine them, and the influence of moral education on outbursts of passion and acts of crime; (4) the relative frequency of suicide and homicide; (5) the relation of epilepsy, &c., to crime; (6) the usefulness of a museum of criminal anthropology; and (7) the influence of climatic and economic conditions on Italian crime. Under the second head the attention of the congress was devoted to questions which had a more intimate relation to practice; and among the most prominent topics considered were the possibility and advantage of incorporating the theories of criminal anthropology in the new Italian penal code, the methods and effects of applying "positive" doctrines to contemporary legal procedure, the position of medical experts in the law courts, the identification of confirmed criminals (by means of anthropometrical records—to which attention was recently called in a question asked in the House of Commons), the nature and treatment of political crime, and the admission of students, for purposes of study, to penal establishments.

We may expect then to find in this volume a tolerably complete presentation of the views of the "Italian" school of criminal anthropology. And we have the greater confidence in forming this expectation, because although Italy, as M. Lombroso remarks, (p. 50), is the birth-place of the new doctrines, yet the proceedings of the congress have been published in French expressly in order to secure their wider publicity. The school, like most new movements, has apparently been subjected to misrepresentation, and care is therefore needed to ascertain its real position. Nor indeed, if we may judge by the contents of this volume, can we be very surprised that this has been the case. For the school is at present undoubtedly in its infancy, although it is an infancy which is very robust, and an infancy which gives promise of attaining a vigorous manhood. The data which have as yet been collected are of necessity comparatively limited in number—although indeed it is but fair to commend the industry and zeal exhibited by the investigators—and the chief strength of the school lies at present, so far as we can judge, in the collection rather than in the interpretation of data. Its aim, as M. Lacassagne says (p. 55), is to introduce scientific method and scientific exactness into the study of questions connected with crime. It desires to effect the removal of the entities and abstractions to which jurists and metaphysicians have given currency. Its fundamental object may be epigrammatically described as the substitution of the study of criminals for the study of crime. But this study is, we imagine, in its inchoate stage. It seems indeed to have hardly reached the point where it can safely attempt to generalise its results; and a rash and precipitate interpretation of the data it has industriously collected may not improbably have been, in part at least, the reason of the misrepresentation to which it has apparently been exposed. That this is the present position of the study may, we conceive, be gathered from the discussions in the sociological part of the volume where the practical application of the principles of the school is considered. The first subject in this, as in the biological section, is, we think, rightly described (p. 410) by M. Ferri in the masterly address in which he summarises the proceedings of the congress, as the most important and characteristic of the topics discussed. But it gave rise to an animated debate, and ended in the adoption of a resolution couched in the most general terms, and urging that regard should be had to the principles of the school of criminal anthropology in the construction of future penal codes. And indeed, although M. Ferri maintains in the same address (p. 423) that the congress has established and confirmed the unanimous agreement reigning among the adherents of the school on its fundamental principles, yet this agreement seems to us to be at present confined to the nature of the method pursued in the collection of data, and apparently does not extend to the interpretation of the data collected.

It would be dangerous, then, to draw any definite conclusions—if we except the nature of the method pursued in its inquiries—as to the tendencies of the school. But perhaps we may venture to say, although we freely confess that we are open to correction, that the school inclines to the view that crime is a disease, originating in unhealthy conditions and antecedents—so much so indeed that the saying of Scripture is literally fulfilled, and the sins of the fathers are visited on the children—that it is marked by unhealthy symptoms—by preponderating anomalies of structure and function, which go far to establish an affinity between it and epilepsy, &c. —and that it is therefore to be treated as a disease, though this does not necessarily imply any mitigation in the severity of punishment. But we must add that there are apparently differences of opinion amongst the adherents of the school on these several points. Some incline to a rigid determinism; others cannot reconcile this with the testimony of consciousness. Some lay greater stress upon inherited tendencies; others upon the influence of contemporaneous environment. And by a strange paradox one speaker even maintains that it is the honest man who is the anomaly, and that the rogues are the true examples of normal development. Despite, however, of these and other differences of opinion, which are probably inevitable, and are, at this stage of the study, undoubtedly healthy, we may conclude by congratulating the adherents of the school upon the untiring ardour with which they agree to prosecute their researches, and we shall look forward with interest to the meeting at Paris in 1889.

Die Haushaltung der Arbeitenden Klassen. Von Ignaz Gruber. Jena: Gustav Fischer, 1887.

This book forms one of a series of economic and statistical studies which is now being published at Jena. The series consists of "monographs" treating of particular economic questions, and dealing more especially with the subjects to which attention has been devoted by the economic students in the German universities. It is produced under the editorship of Professor Elster of Königsberg; and among those who are interested in the project we find the names of Professor Adolph Wagner of Berlin, Professor Roscher of Leipzig, Professor Neumann-Spallart of Vienna, Professor Gustav Cohn of Göttingen, and Professor Inama-Sternegg of Vienna, who is specially connected with the volume before us. If these names, together with others, were not of themselves sufficient guarantee for the character of the series, the sample of conscientious and valuable work presented in this volume would go far towards supplying the want. The book contains an elaborate—we might almost say microscopic—examination of a most important and interesting question; and it appears at an opportune moment. For the economic condition of the working classes is at present the subject of eager, and in some cases partisan, discussion; and this book contains abundant material for the patient study of all who are really interested in this question. Some indeed of the writers who have exhibited no little temerity in drawing inferences from statistical figures, might well learn from the careful and minute discussions pursued in this book how difficult a task it is to apprehend the true bearing of numerical and tabular statements. The book consists in fact of a detailed examination of the different items in the family-budget of the working classes. In an introduction we have a critical examination of the leading authorities on the subject, among whom of course Dr. Engel occupies a conspicuous position. Then follows an elaborate discussion of some of the main general difficulties which attend the construction of a correct statement of account of the receipts and expenditure of a working family. In the case of the incomings we have for instance to consider the various differences which exist between what may be distinguished in economic phrase as "nominal" and "real" earnings; and in the case of the outgoings not a few difficulties arise in dealing with the different items of (1) food, (2) housing, (3) clothing, (4) firing and lighting, (5) furniture and tools, &c., (6) education, (7) regimen, (8) taxes, (9) insurance, and (10) sundry payments, into which the expenditure is divided (pp. 12—15). In the seventh section some typical "budgets" are presented and examined relating to different sections of the working classes. Four main divisions are made. The first of these comprises the agricultural workmen, and is subdivided under the headings of: (*a*) servants, and (*b*) day labourers, who may be (1) free, with or without property, or (2) bound by contract. In the second division we find the miner, and in the third the handicraftsman. In the fourth and last the industrial workman is considered under the two subdivisions of domestic and factory workers. The results of these budgets are summarised in different tables, and in Table V (pp. 56 and 57) a general summary of the four classes is presented. The typical examples which are here selected for comparison are the budgets of, (1) a Bavarian agricultural free day-labourer who possesses land—an example relating to the year 1872-73, and taken from Goltz; (2) a miner of the Upper Harz, selected from Le Play, and relating to the years 1829-45; (3) a Berlin journeyman-mason of the year 1879, extracted from the Berlin *Statistical Year Book;* (4) a watch-cock-painter of 1878, given by Schnapper-Arndt, and (5) a Bohemian wool weaver of 1882-83, supplied by Dr. J. Singer. The result of these different budgets is that in the first and fourth instances there is a considerable surplus of receipts over expenditure, that in the last a narrow margin for saving exists, that in the second the debit and credit sides of the account exactly balance, and that in the third a deficit is discovered. Figures are also furnished of the percentages of the several items on either side of the account, and attention is drawn to the difficulties of the inquiry. Then in Section VIII some further tables are given and examined covering a wider ground, and relating to various countries. These are gathered from different sources including the materials supplied by Dr. Engel, whose researches are described as constituting a landmark in the history of such investigations. In Section IX some special budgets of Viennese workmen are presented, and in an appendix to the volume the figures of some of the tables which are given in the main body of the book according to Austrian reckoning are converted into German. The book may then, we think, be described without exaggeration as a mine of instructive commentary and suggestive statement; and the difficulties connected with the handling of figures seem to us to be throughout frankly recognised and correctly apprehended. In fact it is a book which forms a valuable contribution to the literature of the subject, and can hardly be neglected without disadvantage and loss by anyone who desires to obtain an exhaustive acquaintance—and on this question superficial opinions are at any rate misleading, if they are not mischievous—with the data and methods which are appropriate to an inquiry into the economic position of the working classes.

Statistische Skizzen der europäischen und amerikanischen Staaten. Von Dr. H. F. Ritter von Brachelli. (Erste Abteilung.) Leipzig: I. C. Hinrichs, 1887.

Dr. Brachelli's Statistical Sketches, which now include the American States and the foreign possessions of the European States, are henceforward to be published in two parts. The present volume forms the first of these, and is confined to the Austro-Hungarian Empire; and the other European together with the American States are to be dealt with in the second part. Dr. Brachelli's position as Chief of the Statistical Department in the Austrian Ministry of Commerce is a guarantee that the figures and facts presented by him have been collected from the most authentic sources that are available, and that they have been arranged in the most workmanlike fashion; and the several different heads of (1) area and population; (2) lands, forests, and sea fisheries; (3) mines, smelting and salt; (4) industry; (5) trade and commerce; (6) education; (7) religion; (8) the constitution of the State; (9) its governmental administration;

(10) its finances; and (11) its military strength, are fully and systematically treated. A separate section is reserved for the recent acquisitions of Bosnia and Herzegovina. Dr. Brachelli's little book is an indispensable aid to the economic and statistical student; and it would be impertinent to attempt to accord it higher praise.

IV.—*Additions to the Library.*

Additions to the Library during the Quarter ended 30*th September*, 1887, *arranged alphabetically under the following heads:*—(a) *Foreign Countries;* (b) *India, Colonial and other Possessions;* (c) *United Kingdom and its several Divisions;* (d) *Authors, &c.;* (e) *Societies, &c.* (*British*); (f) *Periodicals, &c.* (*British*).

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(a) **Foreign Countries.**	
Argentine Republic—	
Datos anuales del Comercio Exterior. Año 1887, No. 53	The Argentine Legation
Procedimientos del Departamento Nacional de Estadística durante el Año de 1886. Plan, 8vo	The Statistical Bureau
Buenos Ayres—	
Boletin mensual de Estadistica Municipal. Año I, April—Junio, 1887	Statistical Bureau of Buenos Ayres
Bulletin mensuel de Démographie de la Ville de—. VI^e^ année. Nos. 4—6. 1887	Dr. E. R. Coni
Austria and Hungary—	
Oesterreichisches Statistisches Handbuch für die im Reichsrathe vertretenen Königreiche und Länder. V^er^ Jahrgang, 1886. 8vo	The Central Statistical Commission
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Band xv. Statistik der Rechtspflege. Heft 1. Die Ergebnisse der Civilrechtspflege im Jahre 1884	
Band xvi. Heft 1. Statistik der Banken für die Jahre 1884 und 1885	
Hungary—	
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(a) **Foreign Countries**—*Contd.*	
Austria and Hungary—*Contd.*	
Hungary—*Contd.*	
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Belgium—	
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Egypt. Le Commerce Extérieur de l'Égypte, pendant l'année 1886. La. 8vo.	The Director-General of Customs
France—	
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Compte Général de l'Administration de la Justice Civile et Commerciale en France et en Algérie, pendant l'année 1885	The Government of France
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Ministère des Travaux Publics. Bulletin du—. Statistique et Législation comparée. Juillet, 1887	The Ministry of Public Works
VILLE DE REIMS. Bulletin Mensuel du Bureau Municipal d'Hygiène. Mai—Juillet, 1887	The Bureau of Hygiène
L'Economiste Français. (Current weekly numbers)	The Editor
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Partie Littéraire. Juin—Août, 1887	"
,, Technique. Juin et Juillet, 1887	
Revue Géographique Internationale. Mars—Juin, 1887	"

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Germany—	
Statistisches Jahrbuch für das Deutsche Reich. Achter Jahrgang, 1887. Maps Monatshefte zur Statistik des Deutschen Reichs. Mai—Juli, 1887 *Statistik des Deutschen Reichs. Neue Folge*— Band xxiii. Kriminalstatistik für das Jahr 1885. Maps Band xxv. Waarenverkehr des deutschen Zollgebiets mit dem Auslande im Jahre 1886. Erster Theil Band xxvii. Statistik der Seeschiffahrt für das Jahr 1886. Abth. 1. Schiffsunfälle an den deutschen Küste im Jahre 1886	The Imperial Statistical Bureau
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Annali di Agricoltura, 1887—	
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„ 120. L'Industria dell' alcool e della vinificazione in Germania ed in Austria	
„ 127. Atti della Commissione incaricata di Studiare i metodi intesi a combattere la peronospora della vite	
„ 130. Legislazione sulla Pesca	
„ 131. Zootecnia. Provvedimenti a vantaggio della Produzione bovina, ovina, e suina	
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Annali dell' Industria e del Commercio, 1887. L'Industria della Soda in Germania	
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Maggio. (Relating to Roumania; Servia; *France*—Dunkirk, Lille; Norway; *Greece*—Patras; Singapore; *England*—Cardiff; *Ireland*—Dublin; *Russia*—Poland; Malta; *Argentine Republic*—Rosario, Santa Fé)	
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Bollettino di Notizie sul Credito e la Previdenza. Anno V, Nos. 10—15, 1887	
Bollettino Semestrale del Credito, Cooperativo, Ordinario, Agrario e Fondiario. Anno IV, 1° Semestre, 1886	
Bollettino Settimanale dei Prezzi di alcuni dei principali Prodotti Agraria e del Pane. (Current numbers)	
Diciassettesima Relazione della Commissione Centrale di Sindacato sulla Amministrazione dell' Asse Ecclesiastico, durante l'esercizio finanziario 1885-86	

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(a) **Foreign Countries**—*Contd.*	
Italy—*Contd.*	
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" 15. Colonia, Dresde, Pará, Stuttgart, y La Guaira	

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(a) **Foreign Countries**—*Contd.*	
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Sheet 16. La Guaira, Filadelfia, Isla de Madera, y Pisco	The Board of Customs
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Norges Officielle Statistik. Tredie Række—	
35. Tabeller vedkommende Skiftevæsenet i Norge i Aaret 1884. (Bankruptcies)	The Central Statistical Bureau
36. Statistik over Norges kommunale Finantser i Aarene 1881-83. (Finance)	
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38. Statistik over den norske Statskasses Finantser i Budget-aarene 1878-85. (State Finance)	
39. Tabeller vedkommende Norges Kriminalstatistik for Aaret 1884. (Criminal Statistics)	
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42. Beretning om Rigets Strafarbeidsanstalter for Aaret 1885-86. (Penitentiaries)	
43. Tabeller vedkommende Norges Handel i Aaret 1886. (Trade)	
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Abridgment of the Debates of Congress from 1789 to 1856 . . . by the Author of the Thirty Years' View [Thomas H. Benton]. Vols. i—xi, 1789—1832. La. 8vo. New York, 1857-59	—

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Annual Report of the Board of Regents, showing the Operations, Expenditures, and Condition of the Institution to July, 1885. Part 1. (Contents.) Record of Scientific Progress, 1884. Introduction, by *S. F. Baird.* Astronomy, by *W. C. Winlock.* List of Astronomical Observatories, by *G. H. Boehmer.* Vulcanology and Seismology, by *C. G. Rockwood.* Volcanic Eruptions and Earthquakes in Iceland within historic times. Geography, by *J. K. Goodrich.* Physics, by *G. F. Barker.* Chemistry, by *H. C. Bolton.* Mineralogy, by *E. S. Dana.* Bibliography of Invertebrate Palæontology, by *J. B. Marcou.* Zoology, by *T. Gill.* Anthropology, by *O. T. Mason* Smithsonian Miscellaneous Collections. Vol. xxviii. Tables, Meteorological and Physical, by *Arnold Guyot.* Fourth edition, revised and enlarged, 1884. Vol. xxix. Catalogue of Scientific and Technical Periodicals (1665-1882), with Chronological Tables and a Library Check-List, by *H. C. Bolton*, 1885. Vol. xxx. Scientific Writings of Joseph Henry, vol. i. Plates. 1886	The Institution
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Cape of Good Hope—	
Report of the Superintendent-General of Education for 1886, with tables and appendices. Fol.	The Superintendent of Education
Statistical Register of the Colony for 1886, containing also Agricultural Statistics for 1887—. Fol. (Defence, Population, Vital and Meteorological, Finance, Interchange, Production, Accumulation, Law and Crime, Religious, Educational, and Charitable Institutions)	The Colonial Secretary
Jamaica. Annual Report of the Registrar-General for the year ended 30th September, 1886	The Registrar-General of Jamaica
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Queensland. Supplement to the Government Gazette (containing Vital Statistics). Nos. 11, 31, and 53, 1887	The Registrar-General of Queensland
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First Annual Report of the Proceedings of the Government Statist in connection with Trades Unions. Report for 1886, with an Appendix. Fol. Statistical Register of the Colony of Victoria for 1886. Part 1, Blue Book. Fol.	H. H. Hayter, Esq., C.M.G., Government Statist
The Gold-Fields of Victoria. Reports of the Mining Registrars for the quarter ended 31st March, 1887. Plans	The Department of Mines
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Victorian Year-Book for 1885-86 (thirteenth year of issue). Map, 8vo.	The Agent-General for Victoria
Transactions and Proceedings of the Royal Society of Victoria. Part 1 of vol. ix, 1868; vols. xxii and xxiii, 1886-87, diagrams and plates. (Vol. xxii contains "International Statistical Uniformity," by *H. D. Taylor*). 8vo.	The Society
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United Kingdom—	
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Mining and Mineral Statistics of the United Kingdom, including Lists of Mines and Mineral Works, for 1886, and a list of plans of abandoned mines. [C–5132.] 1887	The Secretary of State for the Home Department
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Report of the Royal Commission for the Colonial and Indian Exhibition (London, 1886). Plan, 8vo. 1887	The Royal Commission
Trade and Navigation. Monthly Returns, June, July, 1887	The Board of Trade
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Births and Deaths in London, and in twenty-seven other great Towns. (Weekly Returns, with an Annual Summary.) (Current numbers) Quarterly Return of Marriages to March, Births and Deaths to June, 1887. No. 153	The Registrar-General of England
British Museum. Catalogue of Printed Books [added to the Library since January, 1880]. 6 parts. 4to. 1887	The Trustees of the British Museum
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Birmingham. Report on the Health of the Borough for 1886; also on the Proceedings taken under the Act for the prevention of Adulteration of Articles of Food and Drink. Diagram and map, 8vo	Dr. A. Hill
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Births and Deaths in Dublin, and in fifteen of the principal Urban Sanitary Districts. (Weekly Returns, with a Quarterly and Annual Summary.) (Current numbers) Quarterly Return of Marriages to March, Births and Deaths to June, 1887. No. 94	The Registrar-General of Ireland
Dublin. Statistical Tables of the Dublin Metropolitan Police for 1886. Fol.	The Commissioner of Police
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Births, Deaths, and Marriages in the eight principal Towns. (Weekly and Monthly Returns.) (Current numbers) Quarterly Return of Births, Deaths, and Marriages registered in the Divisions, Counties, and Districts of Scotland. Quarter ending 30th June, 1887. No. cxxx	The Registrar-General of Scotland
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Tracts. A Collection of Miscellaneous Tracts relating to Temperance, Abolition of Capital Punishment, &c., &c. 8vo. and fol. 1841-86	Thomas Beggs, Esq.
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* Foreign and Colonial Societies will be found under the various countries or possessions to which they belong.

Vol. L.] [Part IV.

JOURNAL

OF THE ROYAL STATISTICAL SOCIETY,

DECEMBER, 1887.

"*The* INCREASE *of* MODERATE INCOMES;" *being the* INAUGURAL ADDRESS *of the* PRESIDENT *of the* ROYAL STATISTICAL SOCIETY, *the* RIGHT HON. G. J. GOSCHEN, M.P., *Chancellor of the Exchequer*. SESSION 1887-88. DELIVERED *6th December*, 1887, *at* WILLIS'S ROOMS.

GENTLEMEN, it frequently happens that a speaker who is about to address an audience, has to make an apology, but it is not often, as on the present occasion, that he has a threefold apology to make. I have in the first instance to express my deep regret to you, the members of the Statistical Society, that although you did me the honour more than a year ago to elect me as your President, I have never as yet been able to take any part in your meetings, or to discharge any of the duties which belong to my office. You will, I trust, not for one moment have believed that I undervalue the services or the importance of the Society over which you have called me to preside; but when I accepted the office, I had more leisure at my disposal than I have now, and I sincerely believed that it would be in my power to render some little service to you. In the second place, I must apologise to you for the delay which has taken place in delivering my inaugural address this present season. Here again I must plead official duties and the pressure of other work, which I need not more particularly specify.

But my third cause of regret is perhaps the most serious of all. I feel that I have not had adequate leisure to prepare an address worthy of the occasion and of those whom I meet in this hall to-night. There is no study which requires more continuous and undisturbed attention than the study of complicated statistical problems. There is no field of knowledge on which hasty excursions are so likely to lead one into bogs where one may stick fast, or into tangled jungles from which one will find no escape. No man feels more deeply than myself how important it is that figures should be put forward only after profound inquiry, and with the minutest care as to their arrangement and disposition. The science of statistics, of which I see so many able professors here to-night, is an exact science. The facts with which it deals only degenerate into misleading confusion when carelessly or too astutely handled. The expression, derogatory to statisticians, that "figures will prove "anything," as every one of you know better than I do, simply means that figures, which never tell untruths, may be so handled as to present untruths. Figures themselves never lie, but every one must admit that there is no sound and accurate material which can be so easily handled for the special purposes of the compiler as statistics can.

I had at one time thought of presenting to your notice this evening some of the canons and rules by which statistical statements might be dissected and examined—a kind of guide to the detection of statistical error. I can fancy that an interesting address might be delivered on statistical fallacies, illustrated by copious examples from contemporary politicians and social philosophers. Given a great number of figures partially unknown, given unlimited power and discretion of selection, and given an enthusiast determined to prove his case, and I will not answer for the consequences. But we are all statisticians here to-night, and I am not sure whether, as president of the Statistical Society, I should not by such a course have trodden on the toes of many of the professors of the craft. I will therefore confine myself to a single illustration. The statistician, or more properly speaking the administrator of statistics, is like a showman who is exhibiting certain figures. According as he throws light and shade upon the pictures which he exhibits, he can produce true or false impressions. Whole rows of figures he may throw into impenetrable shade, while others are at the same time brought into excessive prominence, and thus, to the eye of the spectator, much may be rendered invisible, and much may be distorted by exaggerated lights, which turn facts into caricatures.

But I will leave this topic, and simply add, with reference to my own position, that your present president is not a producer or manufacturer of statistics; he is in most instances simply a consumer—a fact which perhaps may lead the more uncharitable of my audience to the idea that it is because he is not himself a producer that he has indulged in the foregoing remarks. Or, if you prefer it, I will not speak of myself as a consumer on this occasion, but rather as a middleman between consumer and producer. And, may be, it is as well that the president in his annual address, instead of directing his remarks exclusively to statisticians, should play the part of such a middleman, and serve as a medium between statisticians and the general public.

Having abandoned the idea which I at first entertained, of examining the canons of statistical criticism, I am about to engage in a more dangerous task, namely, to put before you a statistical thesis, which may be open to attack from many sides, and to which perhaps some of you may apply the dissecting processes to which I have alluded. But, believe me, it is in no spirit of dogmatism that I shall speak, I shall deal tentatively with the propositions which I am about to put before you, and I will then hand over the subject for further consideration to those who combine those two important qualifications for the pursuit of statistics, leisure and impartiality, and who will approach the question with an open mind.

I propose to speak on the increase in this country during recent years of the number of moderate fortunes and of small investors, coupled with symptoms of a decrease in the tendency to the accumulation of large fortunes in a few hands. I wish to point out the growing importance in our economic and social—and I might almost say our political—system of the smaller middle class. I will not be tempted by the significance of that class into any digressions concerning the political aspects of the case; but I think I may say, without giving offence to any party, that it must be to the advantage of every State that what I may call the great central body of the community should be reinforced in numbers, and I propose by your leave to examine to-night the question to what extent that central body is being reinforced in our own country at the present time.

The subject of this address is one on which I have already dwelt, both in a speech before the Manchester Chamber of Commerce two years ago, and in my budget speech this year. The figures I then gave I found to excite a great deal of interest, and, at the same time, the discussion which arose out of them seemed to indicate that their lessons were far from being, so far as I may venture upon a judgment, adequately realised. I wish to lift some of the facts which I then dwelt upon, and which are of great social and political importance, into greater prominence. What I am about to say may have little novelty for experts, but it may not be without its use if it serves to bring home to the public some important considerations with which experts are already to a great extent familiar.

Since I originally put forward this theory in June, 1885, my general drift has been confirmed by a high authority. On p. 16 of the final Report of the Commission appointed to inquire into the Depression of Trade, a body whose conclusions, I may parenthetically remark, seem to me to have been unduly neglected because they contain nothing sensational, is given a table, drawn from the returns under Schedule D of the income tax, which I will not quote. as I propose to give similar, but fuller and somewhat later figures of my own, and on this table the Commission base the following statement, to which I would call your special attention.

These are the words of the Royal Commissioners: "From this "table it would appear that the number of persons with incomes "of less than 2,000*l.* a-year has increased at a more rapid rate than "the population (which in the period in question increased about "10 per cent.), while the number of persons with incomes above "2,000*l.* has increased at a less rapid rate, and the number with "incomes above 5,000*l.* has actually diminished; and further, that "the lower the income the more rapid the rate of increase. We "think, therefore, that whether the aggregate amount of profits is "increasing or not, there is distinct evidence that profits are "becoming more widely distributed among the classes engaged in "trade and industry; and that while the larger capitalists may be "receiving a lower return than that to which they have been "accustomed, the number of those who are making a profit, though "possibly a small one, has largely increased."

Well now, with regard to the table on which these remarks are based, there are of course several qualifying considerations. The figures under Schedule D of the income tax show the incomes of certain tax-paying entities, but those tax-paying entities do not always correspond to actual individuals. Under the head of "Trades and Professions" in Schedule D, men are arranged in certain classes according to their incomes; but those are only the incomes which they declare under that head, and they may at the same time be deriving other incomes which fall under other schedules. For instance, they may be receivers of dividends under Schedule C, or they may be landed proprietors under Schedule A, or they may be shareholders in any of the companies which are separately assessed under Schedule D itself. Therefore all the allegations which are made upon the strength of the returns under this head of "Trades and Professions" require to be qualified, and it must be remembered that the incomes of small amounts under Schedule D may often be lifted into a higher grade by additional resources appearing under other schedules. But again there is a consideration on the other side. Under Schedule D the returns made are in many cases those of firms and not those of individuals; so that while in some cases the figures under Schedule D may not indicate the full amount of the incomes of the persons assessed, in other cases those figures are far larger than such incomes, because they represent the profits of firms which are returned in the aggregate, and not separately for the several partners.

I do not wish therefore to rely too exclusively upon the evidence of Schedule D. But the Commission considered it to be valuable evidence, and I consider that it is extremely valuable evidence, if you can corroborate it from other sources, and it will be my duty to point to such corroborating evidence. I have looked out for other tests of the proposition, which the Royal Commission laid down. I have looked for them in the direction of expenditure, and in the direction of investment, and I shall have presently to refer to the result of these investigations.

But before passing to these tests, let me give you the latest lessons which are to be derived from the income tax itself. I have here a table which shows the number of income tax assessments, under Schedule D, of individuals and private firms, and I see that in the year 1877[1] there were assessments of between 150*l.* and 1,000*l.*, 317,839; while in 1886 there were 379,064 assessments of this amount, an increase of 19·26 per cent. On the other hand, of incomes of 1,000*l.* and upwards there were assessed in 1877 22,848, and in 1886, 22,298, a decrease of 2·4 per cent., that is to say, that incomes between 150*l.* and 1,000*l.* derived from trades and professions increased during that period by nearly 20 per cent., while on those of 1,000*l.* and upwards there was an actual decrease of nearly 2½ per cent. Now I had better indicate at once the lesson which I think those figures teach, and which is practically the thesis which I am to put before you this evening, namely, that the larger figures are not increasing, but the increase in the aggregate wealth of the community is to be found rather in the middle classes than in the highest stratum of wealth.

To go more into particulars, I have by me a second table, which shows more in detail how wealth is distributed between the different classes of income tax payers under Schedule D. In incomes between 150*l.* and 500*l.* the increase per cent. between the years 1877 and 1886 was 21·4. In those between 500*l.* and 1,000*l.* there was during the same period no increase at all; the numbers in 1877 were 32,085, and in 1886 32,033, being to all intents and purposes the same. When we come to incomes between 1,000*l.* and 5,000*l.* there is an increase of 2·4, but in those over 5,000*l.* there is a decrease of 2·3. It results from these figures that during ordinary times, and during times of depression, during times such as we have recently gone through, and which certainly have not been times of great prosperity, there has yet been a most satisfactory and steady increase in the number of incomes below 1,000*l.*

Now let it be remembered that these assessments of "Trades "and Professions" under Schedule D do not by any means represent the total number of existing incomes of any particular amount, but only those which can be more or less counted. These figures do not include the great number of incomes which go to make up the unanalysable totals of Schedules A and C. They do not even include all the incomes assessed under Schedule D. You have besides in that same schedule the incomes of the shareholders of all the companies whose profits are assessed in the lump. I shall consider hereafter what evidence there is that the profits of these companies go to enrich a larger number of people than they once did. But before I pass from individuals to companies, I must call attention to Schedule E. Schedule E is not, as has sometimes been erroneously thought, confined to the salaries of officials. I have seen it stated in important organs of public opinion that Schedule E simply represented the incomes of the servants of the public. But that is not so: officials are rather less than half of the total number of persons assessed under Schedule E: the remainder consist of other employés of public companies, private firms, or individuals. Now in the last ten years which I am passing under review the assessments under Schedule E have increased from 78,224 to 115,964, so that there again you have a large proportion of persons added to the income-tax-paying class, of whom very few can be described as rich.

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[1] Throughout this essay "year" stands for "financial year." Thus "the year 1887" means "the year from the 1st April, 1886, to the 31st March, 1887."

You may wish to know what number of these assessed under Schedule E are to be considered as wealthy employés, and how many belong to distinctly the middle class and to the smaller incomes. Well, I have made inquiries into that point, and I find that a very large proportion of the total number assessed under Schedule E have a smaller income than 400*l.* a-year. The figures for 1886 are these: under 400*l.* a-year, 104,108; at 400*l.* and over, 11,856. So that Schedule E again represents a large class of persons with moderate incomes, and the class of persons who are in receipt of no more than 400*l.* a-year from their regular employment. In order to get some conception of the extent of the small middle class, you have to add the great bulk of these assessments under Schedule E to the assessments of less than 500*l.* a-year under Schedule D.

I was anxious to test the growth of these small middle class incomes in another way, namely, through the probate duty, but owing to the changes in the law I have not been able to get tables going any distance back, nor, if they did go back, could we expect to find them as yet much affected by the increase of small fortunes. This is a recent movement, and the recruits to whom I have referred have not yet had time either to accumulate money or to die.

But the figures of the probate duty teach some very interesting lessons, to which I do not know whether attention has previously been called. I should like to direct your notice to the great number of small estates which are annually proved, and also, if you will excuse me for turning aside for a moment from the general line of my argument, to what appears to me to be a real statistical curiosity, namely, the extraordinary regularity in the number of estates of each grade falling in in each year. The aggregate figures of the probate duty for the years 1885, 1886, and 1887, in round numbers are as follows: 1885, 3,793,000*l.*; 1886, 3.900,000*l.*; and 1887, 3,834,000*l.*; figures presenting remarkable regularity. It is generally thought that it is the large estates on which the revenue may rely, but the fact is that here, as in many other parts of our revenue system, we rely not so much upon the extremely rich, as upon the general distribution of wealth. Of the total number of estates in 1885, for instance, which amounted to 59,000, there were 45,950 under 1,000*l.*, being 77·86 of the total, and there were 57,887 under 20,000*l.*, being 98·08 of the total.

Now I come to what I call the statistical curiosity. I have caused a table to be made showing for three successive years the number of estates proved not exceeding 1,000*l.*, the number between 1,000*l.* and 5,000*l.*, between 5,000*l.* and 10,000*l.* and so forth. The following are the results to which I particularly call the attention of my audience. The estates not exceeding 1,000*l.* were 45,950 in 1885; they were 46,903 in 1887. Now it strikes me as a very extraordinary fact that that average should be kept up in so striking a manner; but the figures become still more remarkable as we go up the scale. Between 1,000*l.* and 5,000*l.* there were in 1885 8,782 estates, and in 1887 9,094; between 5,000*l.* and 10,000*l.* 1,938 in 1885, and 2,032 in 1887; between 10,000*l.* and 20,000*l.* there were 1,217 in the former year, and 1,240 in the latter. I am amazed at the fact that in these two years the difference in the number of estates of from 10,000*l.* to 20,000*l.* falling in was only 23 in upwards of 1,200. To continue, between 20,000*l.* and 30,000*l.* there were 389 estates in 1885 and 444 in the year 1887. Between 30,000*l.* and 40,000*l.* there were 208 in the one year and 228 in the other. Between 40,000*l.* and 50,000*l.* there were 145 in the one year and 140 in the other, again a most astonishing equality. Between 50,000*l.* and 100,000*l.* there were 246 in the one year and 255 in the other. Between 100,000*l.* and 150,000*l.*—when you come to these great figures the regularity is still more striking—there were 61 in the one year and 64 in the other. Between 150,000*l.* and 200,000*l.* there were 32 in 1885, 32 in 1886, and 33 in 1887; and between 200,000*l.* and 250,000*l.* there were 16 in 1885, 16 in 1886, and 17 in 1887. Now I confess that that seems to me to be a most remarkable statistical phenomenon, that men choose to present to the exchequer, with such extraordinary regularity, about the same number of great windfalls in every succeeding year. One would have thought that if there was anything that was variable, it would be the number of deaths of men of a certain degree of fortune in any particular year; but in this as in everything else nature appears to assert herself, and to be determined that the exchequer shall not be defrauded of its full share of large estates in any single year. I have often marvelled at the exactness with which the able men who frame our estimates are in the habit of forecasting the revenue, but I did not know till I examined it to what extent they were assisted by the steady average of mortality in every grade of fortune.

I will now turn from the analysis of taxation to the tests which I promised to apply to my thesis from investments and expenditure, and will first deal with a patent extension of the numbers of small investors. In my opinion this greater distribution of wealth of which I am speaking is in the main, or at least to a very large extent, the result of the extension of limited liability. Formerly great businesses gave profits to a small number of individuals, whose fortunes accumulated; but now, when so many of these great businesses are turned into limited companies, a much larger proportion of the community is introduced to a share in the profits of industry and trade. Take any of the great breweries, for instance, which have lately been turned into limited companies. The goodwill of those businesses passes out of the hands of the former proprietors, who receive that which is paid by the shareholders; but in the future all the profits of those breweries will go not to half a dozen or a score of men, but will go to hundreds or even thousands. It appears to me that in every department of business we see this tendency. We find an ever increasing portion of the community becoming practically traders, and sharing in the profits of business; and the new shareholders apparently are often content with a smaller rate of profit than would have satisfied the original proprietors. But the only point with regard to this change to which I would now direct your attention is its effect on the diffusion of wealth. I might put it pedantically in this form, that *à priori* one would expect that the limited liability company would serve as a conduit for pouring the profits of business over a much larger area than they formerly reached; but that if we are not content with the *à priori* argument, an examination of the facts, to which I will now call your attention, shows conclusively that it is so.

The first figures which I am about to give on this head are probably familiar to a good many experts, but they are nevertheless so striking that they will bear repetition. The total paid up capital of all companies registered in April, 1877, was 307,000,000*l.*, and in April, 1887, the total paid up capital of registered companies was 591,500,000*l.*, the increase in ten years being 92 per cent. These are gigantic figures, and show the enormous growth of the system of limited liability. But, I have asked myself, how far there was an increase in the number of companies corresponding to the increase of capital, or whether the increase of capital came through the development of old companies. Now the income tax returns are not very helpful on this point. Under the heads of waterworks, ironworks, mines, quarries, and railways, they mix up private firms and public companies. But there is a column in these returns, a column containing all companies which do not belong to any of the classes just mentioned, and containing companies only; and under this head I find that the number of companies in 1877 was 2,695, and in 1886 it was 5,135, an increase of 90 per cent., curiously enough corresponding exactly to the figures which I have just given, namely, the increase in the aggregate capital of the limited liability companies during the same period. But what we want to know is not only whether the number of the companies has increased, not only whether their aggregate capital has increased, but whether the number of shareholders composing them has increased, and I commend this question to the attention of statisticians. I believe that there are figures which are accessible, but which I have not been able to procure in the short time which I have had at my disposal, and which would settle the point. It would be interesting to learn what are the exact facts as to the total present number of shareholders as compared with the number some ten or fifteen years ago. Meanwhile I have examined the figures of twelve companies, taken entirely at random—an insurance company, a bank, a waterworks company, an industrial company, and so forth, and I have compared their capital and the number of shareholders ten years ago, with the capital and the number of shareholders at present. Here is the result: The total paid-up capital of the twelve companies in 1876 was 5,171,649*l.* By 1886 it had become 6,501,582*l.*, an increase of 25 per cent. But the shareholders in those companies had increased during the same ten years from 11,667 to 20,083, an increase of 72 per cent. The consequence is that the average capital per shareholder in 1876 was 443*l.*, and in 1886 it was 323*l.* I do not think I need dwell upon the lesson which those statistics, if they should be shown by further examination to be fair samples, are calculated to teach. Year by year, it would seem, a larger number of persons are becoming shareholders in companies, and thus participating in the wealth which arises from the vast industrial and commercial activity of the country, but participating in a moderate degree. You must add this increase to that which we have already discovered in the assessments of individuals and private firms under Schedule D, in order to form a just estimate of the extent of the distribution on which I have been dwelling.

But I have not yet exhausted all the tests which I wish to apply to my thesis. There is one form of investment or expenditure (for I hardly know in which category to place it) which ought to throw considerable light especially upon middle class fortunes. I mean life insurance. Now we all know that there is an increase in the business of insurance companies. The annual premiums have increased between 1880 and 1885 from 11,685,000*l.* to 12,846,000*l.* But the question which concerns us now is whether that increase of business has come through persons insuring their lives for larger sums, or from an accession of numbers insuring their lives for smaller sums. Is there a new class of people insuring for smaller sums? The answer is given if you examine the number of policies. The number of policies at the valuation before last was 779,000, and at the last valuation it was 901,000. The amount insured has increased from 383 million £ to 420 million £. But here is the interesting point: While the number of insurers has so greatly increased, the average amount per policy has been reduced from 492*l.* to 466*l.* Is there not additional evidence of my proposition as to the growing distribution of wealth in this access to the body of insurers of a large quantity of persons insuring themselves on the scale of very moderate fortunes?

It is true that no single one of the facts which I have mentioned is conclusive in itself; but I wish to call your attention to the way in which they all seem to point in the same direction. I now come to another test, which I think perhaps you may consider stronger than any that has been applied hitherto, a test not of investment but of expenditure, and that is the number of dwelling houses of different degrees of value as given in the returns made by the Inland Revenue of tenements assessed to inhabited house duty. And here, instead of taking as a whole the period of about ten years which I have been discussing, it will be more instructive to make the comparison in two separate periods, the period from 1875 to 1880, and the period from 1880 to 1886. A glance at the two tables will at once show the difference in the character of the two periods. During the former you still observe the effects of the preceding period of prosperity between 1870 and 1875, and in the latter you see the full result of the depression which subsequently set in. Now let me turn to the tables. They show the increase in the number of dwelling houses, not shops, of 20*l.* and upwards during the two periods respectively. In the earlier period you will observe a considerable and, roughly speaking, a fairly equal increase in the number of houses of every grade. But in the second period, that between 1880 and 1886, to which I would more especially direct your attention, this tendency is completely altered. There is still an increase, though not so great a one as formerly; but while the check to prosperity is clearly seen in houses of the higher grades, it has not affected in anything like the same degree the less valuable dwellings. Thus, in houses of 20*l.* to 30*l.* annual value there is an increase of 19 per cent.; that increase goes on between 30*l.* and 40*l.* and between 40*l.* and 50*l.*, but at this point it receives a check. Between 50*l.* and 60*l.* there is an increase of only 16 per cent.; between 60*l.* and 80*l.* of 15 per cent.; between 80*l.* and 100*l.* of 12 per cent.; between 100*l.* and 150*l.* of 11 per cent. So far, you will observe, the increase is smaller with each ascending step in the scale of wealth. Between 150*l.* and 300*l.* there is a slight rise, and you have 13 per cent. increase; but between 300*l.* and 500*l.* you have again only 11 per cent., and between 500*l.* and 1,000*l.* only 2 per cent., while in houses of over 1,000*l.* a year annual value you have actually a decrease of 8 per cent. You see the result, that, as far as we can judge from the returns of dwelling houses, the smaller incomes have been increasing at a considerably more rapid rate than the larger ones, and especially that their increase has been less retarded by bad times. The houses of the lower middle class in particular have gone on increasing with remarkable steadiness, and, all through, the degree of the increase has been in proportion to the smaller value of the house. I do not know whether I have made myself clear upon the point. My contention is that according to these tables the smaller houses, where you would expect the class to live whom I have described as gradually acquiring a greater share in the general wealth, have steadily multiplied; whereas in a richer stratum of society, where I maintain that the growth of wealth has been checked, you will see a much smaller increase in the number of inhabited houses, while at the highest point that increase vanishes altogether, and there is a positive decrease. It may be said, of course, that this is due to a fall in the rents of the larger houses; but why has that rent fallen? It is because there are a smaller number of competitors for that class of house, and that is simply to express the same fact in a different form. I would therefore urge that here again we have fresh evidence of greater power of expenditure, which I trust means also a greater enjoyment of the comforts of life, of a greater share in the general wealth amongst the bulk of the middle classes and in the centre of society, and not in its upper classes.

The lessons which are taught by the other branch of the house duty, namely, that which is imposed upon shops, are less striking, but I will nevertheless bring them to your notice, because they are interesting in view of the development of limited liability and of the co-operative system. In the case of shops, the tendency is exactly the opposite to that which we have found in dwelling houses. While in the case of houses there is a smaller increase in the valuable houses and a larger increase in the less valuable, in the case of shops, the less valuable hardly increase at all, and it is in the number of the larger shops that the most marked development has taken place. In the period between 1880 and 1886 there is an increase of only 3 per cent. in shops of the value of 20*l.* to 30*l.* There is an increase of 8 per cent. in shops of from 30*l.* to 40*l.*; of 12 per cent. from 40*l.* to 50*l.*; of 10 per cent. from 50*l.* to 60*l.*; and so it goes on in an ascending scale; and even in the highest grade, when we come to shops of 1,000*l.* and upwards, we have an increase of 9 per cent. as compared with an increase of 3 per cent. in those from 20*l.* to 30*l.* Thus it appears that it is the large shops—shops conducted upon the basis of a large capital, and frequently on the principle of limited liability, which are to a certain extent ousting the smaller shops. I am not saying whether this is to be regretted or whether it is a subject of congratulation. Opinions may differ very much on that point. I merely dwell upon what I believe to be an indication that in shop-keeping, as in other classes of business, there is an extraordinary development of the limited liability system, and that the tendency is to an increase in the size and in the capital of firms, together with the distribution of that capital among a larger number of people, in place of the old system where there were not such large amounts of capital, but, on the other hand, such capital as there was was held by far fewer hands.

To sum up this part of the case, I submit that it has been shown that those schedules of the income tax, which do to a certain extent, though not entirely, serve the purposes of a census, point unmistakably to the increase in the number of moderate, side by side with a tendency to remain stationary, and even a decrease, in that of the great incomes. Recognising that this evidence, though most important so far as it goes, is not conclusive, I have tested it by examining the change in the number of investors resulting from the growth of joint stock companies; I have tested it by an analysis of the returns of the insurance companies; I have tested it by the statistics of dwelling houses of various degrees of expense—a most crucial test, since house room is the chief item in almost every man's expenditure, and that which in the majority of cases most accurately indicates the degree of his resources. And in all these inquiries I have found much to confirm and nothing to invalidate the thesis that the feature of the last decade, and especially of the period of depression, is the tendency of wealth among the income tax paying classes to distribute itself in smaller amounts in a larger number of hands.

And here I might have left the matter, but the interest of the investigation has led me a step further, to inquire whether the greater distribution of wealth, of which we have seen evidence among the income tax payers, affects the classes below the income tax line, that is roughly speaking below 150*l.* a-year. And I think that there is proof that it does affect at least the upper stratum of this portion of the community. Here again I would apply similar tests to those which I have applied in the case of the classes above them.

I am sorry that the materials do not exist for applying these tests in an equally thorough manner to the class below the 150*l.* line, but still there are some facts which are well worthy of attention, and which point in the direction which I have indicated. For instance, there is the number of dwelling houses of less than 20*l.* annual value. You will remember that I dealt before only with houses of above 20*l.* I will now turn to those below that line. Of houses valued at less than 10*l.* there were in 1875 3,000,370; and in 1886 3,174,800, an increase of only 5·8 per cent. In houses between 10*l.* and 15*l.*, on the other hand, the increase was enormous, namely 58 per cent., and in houses between 15*l.* and 20*l.* it was 56 per cent. See therefore the entirely opposite tendency in the houses below 20*l.* and the houses above 20*l.* In the houses above 20*l.* the increase was largest at the lowest point, and smallest at the highest; below 20*l.* the increase is much larger at the higher point; and smaller or almost non-existent at the lower. We see therefore that a greatly increased number of the working classes of the country must now be living in houses valued between 10*l.* and 15*l.*, or between 15*l.* and 20*l.*, while those living in houses under 10*l.* are absolutely scarce more, and relatively fewer than they were ten years ago. Of course there is a modifying consideration to be borne in mind in connection with this change. It may be due to a rise in rents; it may be due to the fact that they are compelled to pay more than they did before for no better accommodation. I myself have no doubt that in most cases accommodation is better; but whatever theory you may adopt on this point, you still have the absolute fact that at least the higher class of artizans and working men are paying higher rents than they used to pay ten years ago, and can afford to pay them.

Now if we saw that side by side with the increased rent which they pay, I trust for improved houses, they were obliged to diminish their expenditure in other directions, or their investments, then no satisfactory conclusion could be drawn from this fact of the increase in the number of houses valued between 10*l.* and 20*l.* But when we look to the statistics of what I may call the investments of the working classes, to see whether in consequence of having to pay more house rent these investments have fallen off, we see, I rejoice to say, that that has not been the case. The statistics with regard to savings banks, to co-operative societies, to building societies, are well known, and I would not trouble an audience such as this with them once more, were it not for their significance in relation to the fact which I have just put before you, namely, the large increase in the number of houses between 10*l.* and 20*l.* which are inhabited by the working classes. I wish to remind you that side by side with that increase they have been able to make these enormous additions to their investments which are one of the most satisfactory signs of the day. I look upon it that the working classes through the savings banks and through their friendly societies are beginning to appear in the character of capitalists, just as by means of building societies they are becoming land and house owners, and by means of co-operative societies traders and men of business. No doubt it is said that the returns of the savings banks are no evidence of the welfare of the working class, because the lower middle class contribute largely to the deposits in these banks. But whoever may be the depositors in them, they are at all events not the wealthy. So in whatever proportion the working class and the class immediately above them may contribute to these deposits, they are at any rate evidence of increased prosperity and increased power of saving and investment in the central as opposed to the upper strata of society. Besides, the number of depositors shows that the savings must be derived for the greater part from the artizan and labouring population. And so regarded, they are a most satisfactory symptom. The amounts invested in the savings banks have this year for the first time topped 100 millions. Looking at their progress for the past decade, we find that both in the total amount deposited and in the amount per head of population they show a remarkable advance. In 1875 the total amount of deposits was 67,600,000*l.*, or 40*s.* 9*d.* per head of population; and in 1886 it was 97,700,000*l.*, or 52*s.* 9*d.* per head. But the savings banks are not the only investments of the working class: there are also the important industrial and provident societies; and here again we find a most satisfactory increase. The number of societies making returns increased from 1,168 in 1875, to 1,346 in 1885, and the number of members, in round numbers, from 480,000 to 810,000. The share and loan capital grew from 5.600,000*l.* to 10,700,000*l.* The amount of capital per member was 11*l.* 16*s.* in 1875, and 13*l.* 6*s.* in 1885. It is evident therefore that in these societies, which are essentially working class enterprises, a constant increase of investment has been going on. Then again the building societies tell the same tale. The number of societies making returns has increased from

489 in 1876, to 2,079 in 1886, and their "liabilities," which include both share capital and loans (but loans which in many cases are taken from their own members), have increased from 20,900,000*l.* to 53,100,000*l.*

With regard to the building society figures I must, however, give a word of warning. The increase in the number of societies registered does not necessarily mean an absolute increase of the same extent in the number of societies existing, as in some cases it may simply mean that societies are now registered which formerly were not. And here I may say that I trust any criticism of my argument may not be on points of mere detail, but be made on broad lines. I have informed the Society that I have been compelled to compile these statistics under great pressure. I am convinced that in the main they are to be relied upon, though here and there it may be that modifying considerations have not been stated in sufficient detail. If the argument is to be shaken, it will not be by pointing to the omission here or there of some such modification. The chain of evidence is too strong for that. When every deduction has been made, the great development of the three forms of working class investment which I have quoted bears unequivocal and most satisfactory testimony to the strengthened economic position of at least the aristocracy of the working classes. There is a substantial increase in the number of those not far below the income tax line, as there is a large increase in the classes immediately above it.

I should be glad if I had been able to add to the statistics, which I have placed before you, statistics as regards friendly societies, which form an important element in the savings made by a large section of the community. There is however one table which I am able to submit to you—not a very satisfactory table—showing the progress of the industrial companies, which are insurance companies of the poor. This table shows that the annual premiums in these companies have increased from 1,942,000*l.* in 1880, to 3,550,000*l.* in 1885, and the number of policies from 5,440,000 to 9,132,000, and the amount insured from 49,000,000*l.* to 83,000,000*l.* I do not quote these figures as any evidence on the point with which I have just been dealing, or as greatly affecting the position of what I have called the aristocracy of the working classes. The great number of the policies—9 millions—and the small proportion which the life and annuity funds—4,392,000*l.*,—bear to this high figure, lead to the conclusion that most of these policies are of very small amount. Neither do I wish to commit myself to any approbation of these companies as a form of investment. Still, if they prove nothing else, the figures point at least to an effort, and an increasing effort, in the direction of thrift on the part of even the poorest section of the community. As such they are encouraging, though, as I have said, they have little to do with the increase of moderate fortunes, whether in the middle or the working classes, which has been my theme this evening.

I do not know whether the statistics I have brought before you will to any extent have caused the same impression in your minds that they have made on mine. To me it seems that, while some people are crying out for the artificial reconstruction of society on a socialistic basis, a sort of silent socialism is actually in progress. There is a silent movement towards the further distribution of wealth over a larger area, which from whatever point of view it is regarded seems to me to be a matter for national congratulation. No violent specifics have been applied to produce it. The steady working of economic laws, under a system of commercial and industrial freedom, is bringing about the result I have described. We see it most clearly in the case of the middle class. We see it clearly, though not quite so clearly, in the aristocracy of the working class. The influence is permeating society downwards. May we not hope—nay, confidently reckon—that that progress will continue, and will ultimately affect even that vast mass of the labouring population whom, it may be admitted, it has not yet reached, and who, if their position has somewhat improved, as it has, have been benefited not by obtaining a share in accumulated wealth, but by the greater cheapness of what they buy with their wages. And the best of this automatic socialism is that it appears to operate even in a time of depression. Despite the complaint of absence of profit and of bad times generally; despite want of work and the irregularity in the employment even of those who have work, the great central body of society is strengthening its economic position.

Gentlemen, we have the pleasure this evening of welcoming among us some representatives of foreign communities, who are over here on a special errand. I am afraid that the address which I have made, and which has been directed especially to the economic condition of our own country, may not have had that interest for them which some other statistical proposition might have possessed. But we should be glad indeed if we could learn from foreign statisticians whether and to what extent some of these causes which we have seen to be operating in our own country were operating in theirs also. We should be glad to know whether among them too, through the development of the limited liability system, or the co-operative system, through greater facilities for investment on the part of the middle class and of the working classes, that beneficent movement which is going on in England may be observed elsewhere. I feel that while it has not been in my power to do full justice to the particular proposition which I have laid before you, my object will have been attained if I have inspired others to examine it more fully. It is a theme worthy of the study not only of statisticians, but of every one interested in social and even in political problems, because I believe and trust that that greater diffusion of wealth, which I hope is no chimera, but a real fact of this era in which we live, will be a source of increasing comfort to increasing numbers in the community, and also add power and stability to our institutions at large.

APPENDIX I.

Table A.—*Number of Income Tax Assessments under Schedule D (Individuals and Private Firms).*

	1877.	1886.	Per Cent.
			Increase.
Between 150*l.* and 1,000*l.*	317,939	379,064	19·26
			Decrease.
1,000*l.* and upwards	22,848	22,298	2·40

Table B.—*Income Tax Assessments under Schedule D.*

	1877.	1886.	Per Cent.
			Increase.
Between 150*l.* and 500*l.*	285,754	347,021	21·4
„ 500*l.* and 1,000*l.* ...	32,085	32,033	nil
			Decrease. Per cnt.
„ 1,000*l.* and 5,000*l.*....	19,726	19,250	2·5
Over 5,000*l.*	3,122	3,048	2·3

Table C.—*Number of Assessments under Schedule E (exclusive of Persons Employed in the Public Service).*

1877	78,224
'80	87,724
'83	101,101
'85	112,008
'86	115,964

Table D.—*Probate Duty.*

	Gross Amount.
	£
In 1885	3,792,772
„ '86	3,899,960
„ '77	3,833,678

	Total Number of Estates.	Estates Under 1,000*l.*	Percentage of Total Number.	Estates Under 20,000*l.*	Percentage of Total Number.
1885....	59,016	45,950	77·86	57,887	98·08
'87....	60,480	46,903	77·55	59,269	97·99

	In 1885.	In 1886.	In 1887.
Estates not exceeding 1,000*l.*	45,950	—	46,903
Between 1,000*l.* and 5,000*l.*	8,782	—	9,094
,, 5,000*l.* ,, 10,000*l.*	1,938	—	2,032
,, 10,000*l.* ,, 20,000*l.*	1,217	—	1,240
,, 20,000*l.* ,, 30,000*l.*	389	—	444
,, 30,000*l.* ,, 40,000*l.*	208	—	228
,, 40,000*l.* ,, 50,000*l.*	145	—	140
,, 50,000*l.* ,, 100,000*l.*	246	—	255
,, 100,000*l.* ,, 150,000*l.*	61	—	64
,, 150,000*l.* ,, 200,000*l.*	32	32	33
,, 200,000*l.* ,, 250,000*l.*	16	16	17

TABLE E.—*Public Companies.*

	£
Total paid up capital of all companies registered in April, 1877	307,108,446
Total paid up capital of all companies registered in April, 1887	591,508,692

Increase in ten years = 92 per cent.

Number of companies other than waterworks, ironworks, mines, quarries, and railways, assessed to income tax :—

In 1877	2,695
,, '86	5,135

An increase of 90 per cent.

TABLE F.—*Results in the case of Twelve Companies tested.*

Total Paid up Capital		Total Number of Shareholders.	
1876.	1886.	1876.	1886.
£ 5,171,649	£ 6,501,582	11,667	20,083

Increase per cent. in capital in ten years	25
,, ,, in shareholders in ten years	72
Average capital per shareholder, 1876	443*l.*
,, ,, '86............	323*l.*

Table G.—*Insurance Companies (Ordinary Life).*

	Annual Premium.	Life and Annuity Funds.
	£	£
1880	11,658,319	123,675,355
'85	12,846,925	142,751,707

	Valuation before last.*	Last Valuation.*
Number of policies	779,004	901,877
Amount insured	£383,617,212	£420,650,319
Average amount per policy	£492	£466

* The usual intervals between two valuations are five or seven years.

Table H.—*Increase in the Number of Dwelling Houses, not Shops, of 20l. and upwards.*

Value of Houses.	1875 to 1880.	1880 to 1886.
£		
20— 30	28 per cnt.	19 per cnt.
30— 40	25 ,,	19 ,,
40— 50	23 ,,	21 ,,
50— 60	22 ,,	16 ,,
60— 80	23 ,,	15 ,,
80— 100	18 ,,	12 ,,
100— 150	26 ,,	11 ,,
150— 300	27 ,,	13 ,,
300— 500	35 ,,	11 ,,
500—1,000	22 ,,	2 ,,
over 1,000	9 ,,	– 8* ,,

* Decrease.

Total of Dwelling Houses of 20l. and upwards.

1875	569,326
'80	713,168
'86	838,692

Increase of 1880 over 1875	25 per cnt.
,, '86 ,, '80	18 ,,

TABLE I.—*Increase in the Number of Shops of 20l. and upwards.*

	Between 1875 and 1880.	Between 1880 and 1886.
£ — £		
20— 30	8 per cnt.	3 per cnt.
30— 40	20 ,,	8 ,,
40— 50	20 ,,	12 ,,
50— 60	20 ,,	10 ,,
60— 80	22 ,,	9 ,,
80— 100	21 ,,	14 ,,
100— 150	26 ,,	5 ,,
150— 300	31 ,,	13 ,,
300— 500	36 ,,	6 ,,
500—1,000	31 ,,	– 2* ,,
1,000 and upwards	58 ,,	9 ,,

* Decrease.

Increase of 1880 over 1875	16 per cnt.
,, '86 ,, '80	7 ,,

Increase in Annual Value of Shops between 1875 *and* 1886.

Of all shops	32 per cnt.
,, shops of 20*l.*—30*l.*	12 ,,
,, shops above 1,000*l.*	48 ,,

TABLE J.—*Increase in Dwelling Houses of less than 20l.*

	1875.	1886.	Increase.
			Per cnt.
Under 10*l.*	3,000,370	3,174,806	5·8
10*l.* and under 15*l.*	590,383	932,845	58·0
15*l.* ,, 20*l.*	331,326	517,936	56·3

TABLE K.—SAVINGS BANKS. *Statement showing the Number of Depositors and Amount of Deposits in Trustee and Post Office Savings Banks at the close of the Years* 1875-86.

Years.	Number of Depositors.	Amount of Deposits.				
		Total.	Per Head of Depositors.		Per Head of Population.	
		Mln. £'s.	£	s.	s.	d.
1875	3,256,295	67·6	20	15	40	9
'80	3,704,777*	77·7	21	–*	44	6
'85	5,128,647*	94·1	18	7*	51	4
'86	5,322,225	97·7	18	7	52	9

* The large increase in numbers between these two dates and the decrease per head of depositors are no doubt largely due to the introduction of the method of receiving deposits in postage stamps, which was introduced in 1881.

TABLE L.—INDUSTRIAL AND PROVIDENT SOCIETIES. *Statement showing the Number of Industrial and Provident (Co-operative) Societies Registered under the Industrial and Provident Societies Act of* 1876, *Number of Members, Capital, and Cash received for Goods Sold by such Societies.*

	1875.	1880.	1885.
Number of societies making returns	1,168	1,182	1,346
,, members	479,714	603,852	810,228
	Mln. £'s	Mln. £'s	Mln. £'s
Amount of share capital	4·8	6·2	8·6
,, loan ,,	0·8	1·4	1·8
Total amount of capital	5·6	7·6	10·7
	£ s.	£ s.	£ s.
Capital per member*	11 16	12 11	13 6
	Mln. £'s	Mln. £'s	Mln. £'s
Cash received for goods sold	18·5	23·2	29·9

* Including loan capital.

TABLE M.—BUILDING SOCIETIES. *Statement showing the Number and Amount of Liabilities of Building Societies of the United Kingdom, Incorporated under the Building Societies Acts in the undermentioned Years.*

Years.	Number of Societies making Returns.	Liabilities.
		Mln. £'s
1876	489	20·9
'80	1,187	39·4
'86	2,079	53·1

TABLE N.—*Industrial Companies (the Insurance Companies of the Poor).*

	Annual Premiums.	Life and Annuity Funds.
	£	£
1880	1,941,994	1,476,933
'85	3,550,035	4,392,683

	Last Valuation but one.	Last Valuation.
Number of policies	5,440,493	9,132,271
Amount insured	£48,986,237	£83,291,885
Average amount per policy	£9 –*s.* 1*d.*	£9 2*s.* 5*d.*

APPENDIX II.

[Most of the figures in the preceding appendix are based on well known and published official statistics, or if new the data are fully shown as well as percentage results worked out, but those in Tables H, I, and J are derived from original figures supplied by the Inland Revenue Department, which it may be convenient to show in full.]

A.—Inhabited House Duty. Great Britain. *Statement showing the Annual Value and Number of Messuages and Tenements Assessed to Inhabited House Duty for the Years* 1874-75, 1879-80, 1882-83, *and* 1885-86.

I. *Dwelling Houses.*

	1874-75.	1879-80.	1882-83.	1885-86.
	Number of Dwelling Houses at 9*d*.			
£ £				
20 and under 30	201,063	258,290	288,482	306,408
30 ,, 40	121,897	153,080	172,609	182,972
40 ,, 50	70,921	87,334	99,402	105,407
50 ,, 60	44,709	54,569	59,896	63,096
60 ,, 80	50,433	61,975	68,505	71,436
80 ,, 100	24,319	28,766	31,074	32,365
100 ,, 150	30,808	37,163	39,682	41,336
150 ,, 300	18,715	23,675	25,477	26,732
300 ,, 500	4,141	5,573	5,891	6,198
500 ,, 1,000	1,679	2,046	2,065	2,098
1,000 and upwards	641	697	672	644
Total	569,326	713,168	793,755	838,692
	Annual Value of Dwelling Houses at 9*d*.			
£ £	£	£	£	£
20 and under 30	4,722,249	6,082,146	6,792,955	7,242,738
30 ,, 40	3,994,206	5,030,298	5,679,714	6,032,667
40 ,, 50	3,014,737	3,710,591	4,229,017	4,498,157
50 ,, 60	2,325,836	2,839,851	3,120,264	3,289,085
60 ,, 80	3,329,315	4,092,264	4,518,398	4,724,640
80 ,, 100	2,077,974	2,462,520	2,658,229	2,770,794
100 ,, 150	3,562,314	4,318,192	4,616,397	4,796,678
150 ,, 300	3,592,583	4,577,032	4,922,894	5,166,862
300 ,, 500	1,477,225	1,982,879	2,102,561	2,215,959
500 ,, 1,000	1,068,154	1,303,245	1,315,757	1,333,907
1,000 and upwards	1,293,013	1,377,012	1,315,252	1,208,030
Total	30,457,606	37,776,030	41,271,438	43,279,517

A *Contd.—Annual Value and Number of Messuages, &c., Assessed.*

II. *Shops, &c.*

	1874-75.	1879-80.	1882-83.	1885-86.
	Number of Shops, &c., at 6*d*.			
£ £				
20 and under 30	121,824	131,875	133,844	135,187
30 ,, 40	59,879	71,977	75,889	77,464
40 ,, 50	33,905	40,788	44,093	45,561
50 ,, 60	20,653	24,770	26,647	27,336
60 ,, 80	24,614	29,945	32,376	32,692
80 ,, 100	10,778	13,085	14,511	14,961
100 ,, 150	13,180	16,658	17,601	17,535
150 ,, 300	7,594	9,963	11,120	11,256
300 ,, 500	1,797	2,440	2,650	2,583
500 ,, 1,000	707	924	931	904
1,000 and upwards....	291	359	391	392
Total	295,222	342,784	360,053	365,871
	Annual Value of Shops, &c., at 6*d*.			
£ £	£	£	£	£
20 and under 30	2,782,640	3,029,545	3,084,132	3,125,876
30 ,, 40	1,943,311	2,340,842	2,471,996	2,523,205
40 ,, 50	1,435,561	1,726,838	1,870,065	1,935,291
50 ,, 60	1,072,450	1,284,150	1,381,727	1,417,701
60 ,, 80	1,617,961	1,970,398	2,136,449	2,162,137
80 ,, 100	917,665	1,112,183	1,234,234	1,277,165
100 ,, 150	1,505,174	1,906,996	2,015,610	2,020,963
150 ,, 300	1,444,431	1,899,663	2,128,390	2,153,237
300 ,, 500	641,566	867,621	939,363	923,287
500 ,, 1,000	442,163	590,030	589,670	576,676
1,000 and upwards....	521,124	652,982	738,178	771,788
Total	14,324,046	17,381,248	18,589,814	18,887,326

B.—INHABITED HOUSES, GREAT BRITAIN. *Number and Value of Houses, &c., not Liable to Inhabited House Duty.*

	Year 1874-75.		Year 1879-80.		Year 1882-83.		Year 1885-86.		Percentage of Increase in Number, 1885-86 over 1874-75.
	Number of Houses, &c.	Annual Value.	Number of Houses, &c.	Annual Value.	Number of Houses, &c.	Annual Value.	Number of Houses, &c.	Annual Value.	
	No.	£	No.	£	No.	£	No.	£	
Under 10*l.*	3,000,370	16,253,802	3,090,650	17,572,150	3,136,561	17,892,602	3,174,806	18,390,942	5·8
10*l.* and under 15*l.*	590,383	6,809,935	754,965	8,822,849	842,979	9,797,833	932,845	10,886,431	58·0
10*l.* ,, 20*l.*	331,326	5,544,176	424,700	7,153,151	478,078	8,064,239	517,936	8,749,776	56·3
Total	3,922,079	28,607,913	4,270,315	33,548,150	4,457,618	35,754,674	4,625,587	38,027,149	17·9

Proceedings *on the* 6*th* December, 1887.

Sir Rawson Rawson, in proposing a vote of thanks to the President for his instructive and suggestive address, contrasted the aspect of the overflowing audience on that occasion, with the early meetings of the Society, held in a small upper chamber in St. Martin's Lane, as showing the great progress which statistical science and the Royal Statistical Society had made in public opinion. In those early days the Council felt very much gratified if it had the opportunity of offering to its members at an evening meeting an account of investigations into perhaps a score of schools or a few hundreds of the population; but now they had lately had, through the energy of Mr. Booth, a single-handed inquiry into half a million of the population. On that occasion they had had a question of the highest social importance handled by one most competent to treat it; and in addition to thanking their President for his address, they had also to thank him for having continued to retain an office which he had accepted under circumstances of greater leisure than he at present enjoyed.

Mr. Collet (Governor of the Bank of England) said the honour of seconding the vote of thanks to their President had been conferred upon him, as a guest amongst them, and he most cheerfully and heartily undertook it. The main lesson of the address was one of the most valuable that could be placed before the country, and one which he hoped would be deeply studied. Nothing was more valuable in these days of visionary theories and excited propositions for the distribution of wealth, than to have it shown in a manner so perspicuous and indisputable, that the distribution which is so ardently called for, is in fact already in active although silent operation, through the regular action of economic laws, whereby the profits realised year by year are more and more reaching a class which formerly had little or no participation in them; and that the power to accumulate property was steadily permeating the lower as distinguished from the higher classes; and the trite and catching alliteration that the "poor are growing poorer, and the rich are growing richer," was the very reverse of the truth. He asked them to join in thanking Mr. Goschen most heartily for his most valuable address.

Sir James Caird, in supporting the resolution, said their President had added one more claim to the gratitude of the country, by setting forth so clearly that, notwithstanding the depression of trade, there had in the last ten years been an increased diffusion and accumulation of profits among a greatly larger number, and by this the middle and lower middle classes, and the best of the working class, the backbone of the people, had been vastly strengthened during a period of low prices. They, as a statistical society, might feel proud that on that occasion their President had set forth so admirable an exposition of the real state of the facts, and he begged to thank Mr. Goschen most heartily for this valuable public service.

The resolution was carried by acclamation.

The President said he was extremely obliged to them for having passed this vote of thanks, and also for the patience with which they had listened to his remarks, and to that long array of figures which he felt it his duty to place before them. But if figures might not be put before the Statistical Society, he should like to know before whom they could possibly be put. He thanked them most cordially for the reception they had given him.

"*The* RECENT RATE *of* MATERIAL PROGRESS *in* ENGLAND."

The ADDRESS *of the* PRESIDENT *of* SECTION F.—ECONOMIC SCIENCE *and* STATISTICS—*of the* BRITISH ASSOCIATION, *at the* FIFTY-SEVENTH MEETING, *held at* MANCHESTER, *in* SEPTEMBER, 1887.

By ROBERT GIFFEN, ESQ., LL.D.

IN coming before you on this occasion it has occurred to me that a suitable topic in the commercial capital of England, and at a time when there are many reasons for looking around us and taking stock of what is going on in the industrial world, will be whether there has been in recent years a change in the rate of material progress in the country as compared with the period just before. Some such question is constantly being put by individuals with regard to their own business. It is often put in political discussions as regards the country generally, with some vague idea among politicians that prosperity and adversity, good harvests and bad, in the most general sense, depend on politics. And it must always be of perennial interest. Of late years it has become specially interesting, and it still is so, because many contend that not only are we not progressing, but that we are absolutely going back in the world, while there are evident signs that it is not so easy to read in the usual statistics the evidence of undoubted growth as it was just before 1870-73. The general idea, in my mind, I have to add, is not quite new. I gave a hint of it in Staffordshire last winter, and privately I have done something to propagate it so as to lead people to think on what is really a most important subject. What I propose now to do is to discuss the topic formally and fully, and claim the widest attention for it that I possibly can.

I.

There is much *primâ facie* evidence, then, to begin with, that the rate of the accumulation of wealth and the rate of increase of material prosperity may not have been so great of late years, say during the last ten years, as in the twenty or thirty years just before that. Our fair-trade friends have all along made a tactical mistake in their arguments. What they have attempted to prove is that England lately has not been prosperous at all, that we have been going backwards instead of advancing, and so on; statements which the simplest appeal to statistics was sufficient to disprove.

But if they had been more moderate in their contentions, and limited themselves to showing that the rate of advance, though there was still advance, was different from and less than what it was, I for one should have been prepared to admit that there was a good deal of statistical evidence which seemed to point to that conclusion, as soon as a sufficient interval had elapsed to show that the statistics themselves could not be misinterpreted. There has now been ample time to allow for minor variations and fluctuations, and the statistics can be fairly construed.

I have to begin by introducing a short table dealing with some of the principal statistical facts which are usually appealed to as signs of general progress and the reverse, and I propose to go over briefly the items in that table and to discuss along with them a few broad and notorious facts which cannot conveniently be put in the same form.

Statement as to Production or Consumption of Staple Articles in the United Kingdom in the undermentioned Years, with the Rate of Increase in the Different Periods compared.

		1855.	1865.	1875.	1885.	Ratio of Increase per Cent.		
						1855-65.	1865-75.	1875-85.
Income tax assessments	mln. £	308	396	571	631	28	44	10
Production of coal........	mln. tons	64	98	132	159	53	35	20
„ pig iron	„	3·2	4·8	6·4	7·4	50	33	16
Receipts from railway goods traffic per head of population		—	11*s.**	18*s.**	21*s.* 2*d.**	—	63	18
Clearances of shipping in foreign trade	mln. tons	10	15	24	32	50	60	33
Consumption of tea per head	lbs.	2·3	3·3	4·4	5·0	43	33	13½
Consumption of sugar per head	„	30·6	39·8	62·7	74·3	30	58	19

* These figures are for 1860-64, 1870-74, and 1880-84.

The first figures are those of the income tax assessments. What we find is that if we go back thirty years and compare the amount of income tax assessments in the United Kingdom at ten years' intervals, there appears to be an immense progress from 1855 to 1875, the first twenty years, and since 1875 a much less progress. The total amount of the assessments themselves, stated in millions, was as follows:—

	Mln. £		Mln. £
1855	308	1875	571
'65	396	'85	631

And the rate of growth in the ten-yearly periods which these figures show is—between 1855 and 1865, 28 per cent.; between 1865 and 1875, 44 per cent.; and between 1875 and 1885, 10 per cent. only.

Making all allowance for changes in the mode of assessment by which the lower limit of the tax has been raised, for the apparent increase before 1875, which may have been due to a gradual increase of the severity of the collection, and for the like disturbing influences, I believe there is no doubt that these income tax assessments correspond fairly well to the change in the money value of income and property in the interval. How great the change in the rate of increase is, is shown by the simple consideration that if the rate of increase in the last ten years, instead of being 10 per cent. only, had been 44 per cent., as in the ten years just before, the total of the income tax assessments in 1885, which is actually 631 million £, would have been 882 million £! Something then has clearly happened in the interval to change the rate of increase.

These figures being those of money values, an obvious explanation is suggested which would account in great part for the phenomenon of a diminished rate of increase in such values without supposing a reduction of the rate of increase of real wealth, of the things represented by the money values, to correspond. This is the fall of prices of which we have heard so much of late years, and about which in some form or another we shall no doubt hear something at our present meeting. It is quite clear that if prices fall, then income tax assessments must also be affected. The produce of a given area of land, for instance, sells for less than it would otherwise sell; there is less gross produce, and in proportion there is even less net produce, that is, less rent; consequently the net income appearing in the Income Tax Schedules is either less than it was or does not increase as it did before. The same with mines, with railways, and with all sorts of business under Schedule D. The things themselves may increase as they did before, but as the money values do not increase, but diminish, the income tax assessments cannot swell at the former rate. It is the same with salaries and other incomes not dependent so directly in appearance on the fall in prices. Salaries and incomes are of course related to a given range of prices of commodities, and a fall in the prices of commodities implies that the range of salaries and incomes is itself lower than it would otherwise be, assuming the real relation between the commodities and incomes to be the same after the fall in prices as it would have been if there had been no fall in prices. Hence the income tax assessments by themselves are not a perfectly good test in a question like the present. The change implied may be nominal only, so far as the aggregate wealth and prosperity of the community are concerned, though of course there can be no great and general fall of prices without a considerable redistribution of wealth, which must have many important consequences.

This criticism, however, does not apply to the remaining figures in the short table submitted, and to various other well known facts, which we shall now proceed to discuss.

The production of coal, then, is found to have progressed in the last thirty years as the income tax assessments have done. The figures in millions of tons at ten years' intervals are as follows:—

	Mln. tons.		Mln. tons.
1855	64	1875	132
'65	98	'85	159

And the rate of growth in the ten-yearly periods which these figures show is between 1855 and 1865, 53 per cent.; between 1865 and 1875, 35 per cent.; and between 1875 and 1885, 20 per cent. only. The rate of growth in the last ten years is much less than in the twenty years just before. The percentages here, it will be observed, are higher than in the case of the income tax assessments. The increase in the last ten years in particular is 20 per cent. as compared with an increase of 10 per cent. only in the income tax assessments. But the direction of the movement is in both cases the same.

I need hardly say, moreover, that coal production has usually been considered a good test of general prosperity. Coal is specially an instrumental article, the fuel of the machines by which our production is carried on. Whatever the explanation may be, we have now therefore to take account of the fact that the rate of increase of the production of coal has been less in the last ten years than in the twenty years just before.

Then with regard to pig iron, which is also an instrumental article, the raw material of that iron which goes to the making of the machines of industry, the table shows the following particulars of production:—

	Mln. tons.		Mln. tons.
1855	3·2	1875	6·4
'65	4·8	'85	7·4

And the rate of growth which these figures show is between 1855 and 1865, 50 per cent.; between 1865 and 1875, 33 per cent.; and between 1875 and 1885, 16 per cent. only. Whatever the explanation may be, we have thus to take account of a diminution of the rate of increase in the production of pig iron much resembling the diminution in the rate of increase of the production of coal.

At the same time the miscellaneous mineral production of the United Kingdom has mostly diminished absolutely. On this head, not to weary you with figures, I have not thought it necessary to insert anything in the above short table; but I may refer you to the tables put in by the Board of Trade before the Royal Commission on Trade Depression. Let me only state very briefly that while the average annual amount of copper produced from British ores amounted in 1855 to over 20,000 tons, in 1865 the amount was about 12,000 tons only, in 1875 under 5,000 tons, and in 1885 under 3,000 tons. As regards lead, again, while the production about 1855 was 65,000 tons, and in 1865 about 67,000 tons, the amount in 1875 had been reduced to 58,000 tons, and in 1885 to less than 40,000 tons. In white tin there is an improvement up to 1865, but no improvement since, and the only set-off, a very partial one, is in zinc, which rises steadily from about 3,500 ton in 1858, the earliest date for which particulars are given, to about 10,000 tons in 1885, considerably higher figures having been touched in 1881-83. There is nothing, then, in these figures as to miscellaneous mineral production to mitigate the impression of the diminution in the rate of increase in the great staples, iron and coal, in recent years.

Agricultural production, it is also notorious, has been at any rate no better, or not much better, than stationary for some years past, although down to a comparatively recent period a steady improvement seemed to be going on. Making all allowance for the change in the character of the cultivation, by which the gross produce is diminished, although the net profit is not affected to the same extent, and which might be held to argue no real decline in the rate of general growth if the population, diverted from agriculture, were more profitably employed, yet the facts, broadly looked at, taken in connection with the other facts stated as to diminished rate of increase in other leading industries, seem to confirm the supposition that there may have been some diminution in the rate of increase generally.

It is, unfortunately, impossible to state in a simple manner the progress at different dates in the great textile industries of the country. Everything as regards these industries is thrown out by the disturbance consequent on the American war. It does not appear, however, that what has happened as regards the main textile industries, cotton and wool, would alter sensibly the conclusions above stated, drawn from the facts as to other main industries of the country. If we take the consumption of raw materials as the test, it would appear that the growth in the cotton manufacture is from a consumption of 28 lbs. per head in 1855 to about 38 lbs. per head in 1875; while in 1885 the consumption is nearly 42 lbs. per head, an increase of 4 lbs. per head in the last ten years, against 10 lbs. per head in the previous twenty. The percentage of increase in the last twenty years must therefore, on the whole, have been less than in the previous twenty, although in these twenty years the great interruption due to the American civil war occurred. Of course the amount of raw material consumed is not here an absolute test. There may be more spinning and weaving now in proportion to the same quantity of raw material than was formerly the case. But the indications are at least not so certain and direct as when the consumption of raw material could be confidently appealed to. As regards wool the comparison is unfortunately very incomplete owing to the defect of data for the earlier years; but what we find is that the amount of wool consumed per head of the population of the United Kingdom has in the last ten years rather declined than otherwise from nearly 11 lbs. per head in the five years 1870-74 to 10 lbs. per head only in the five years 1880-84. Here, again, the explanation suggested as to cotton—viz., that there may be more spinning and weaving now in proportion to the same quantity of raw material than was formerly the case—applies. But the answer is also the same, that at any rate the indications of progress are no longer as simple as they were. The reality of the former rate of advance is not so clearly manifest.

Of course I need hardly add that in the case of another great textile, silk, there has been no progress, but the reverse, for some years; that this is also true of linen; and that the increase in the allied manufacture, jute, can only be a partial set-off.

In the textiles, then, as in other staple industries of the country, the rate of advance in the last ten years, measuring by things, and not merely by values, has been less than in the twenty years immediately before.

We pass on, then, to another set of figures included in the short table above submitted. We may look not only at leading industries of production directly, but at the broad figures of certain industries which are usually held to reflect, as in a mirror, the progress of the country generally. I refer to the railway traffics as regards the home industries of the country, and the entries and clearances of shipping in the foreign trade as regards our foreign business.

As regards railways what we find is, if we take the receipts from the goods traffic in the form in which they were summarized for the Royal Commission on Trade Depression, viz., reduced to so much per head of the population on the average of quinquennial periods, that in the five years 1860-64, which is as far back as the figures can be carried, the receipts per head were 11*s.*; ten years later, viz., in 1870-74, the receipts per head were 18*s.*;

and ten years later, viz., 1880-84, the receipts per head were 21*s.* 2*d.* The rate of growth shown in the first ten years' interval is 63 per cent.; in the second ten years' interval it is only 18 per cent.; and in the last year or two, I may add, there has been no further improvement. Here the question of the value of money comes in again, but this would only modify partially the apparent change. There is also a question as to railway extension having been greater in the earlier than in the later period, so that growth took place in the earlier period because there were railways in many districts where they had not been before, and there was no room for a similar expansion in the later period. But the difference in the rate of growth it will be observed is very great indeed, and this explanation seems hardly adequate to account for all the difference. At any rate, to repeat a remark already made, the indications are no longer so simple as they were. There is something to be explained.

The figures as to the number of tons of goods carried are not in the above table; nor are such figures very good, so long as they are not reduced to show the number of tons conveyed one mile. But, *quantum valeant*, they may be quoted from the Board of Trade tables already referred to. The increase, then, in minerals conveyed between 1855 and 1865 is from about 40 million to nearly 80 million tons, or 100 per cent.; between 1865 and 1875 it is from 80 to about 140 million tons, or 75 per cent.; and in the last ten years it is from 140 to 190 million tons only, if quite so much, or about 36 per cent. only. As regards general merchandise, again, the progression in the three ten-yearly periods is in the first from about 24 to 27 million tons, or rather more than 50 per cent.; in the second from 37 to 63 million tons, or 70 per cent.; and in the third from 63 to 73 million tons, or 16 per cent. only. As far as they go there is certainly nothing in these figures to oppose the indications of a falling off in the rate of increase in the general business already cited.

Coming to the movement of shipping in the foreign trade, the series of figures we obtain are the following, which relate to clearances only, those relating to entries being of course little more than duplicate, so that they need not be repeated: 1855, 10 million tons; 1865, 15 million tons; 1875, 24 million tons; 1885, 32 million tons. And the rate of growth thus shown is between 1855 and 1865 no less than 50 per cent.; between 1865 and 1875 no less than 60 per cent.; and between 1875 and 1885 about 33 per cent. only—again a less rate of increase in the last ten years than in the period just before. Here, too, it is to be noticed, what is unusual in shipping industry, that in the last few years the entries and clearances in the foreign trade have been practically stationary. The explanation no doubt is in part the great multiplication of lines of steamers up to a comparatively recent period, causing a remarkable growth of the movement while the multiplication of lines was itself in progress, and leaving room for less growth afterwards because a new framework had been provided within which traffic could grow. But here again it is to be remarked that the whole change can hardly, perhaps, be explained in this manner, while the remark already made again applies, that the fact of explanation being required is itself significant.

The figures of imports and exports might be treated in a similar manner, as they necessarily follow the course of the leading articles of production and the movements of shipping. But we should only by so doing get the figures we have been dealing with in another form, and repetition is of course to be avoided.

The short table contains only another set of figures, viz., those of the consumption of tea and sugar, which are again commonly appealed to as significant of general material progress. What we find as regards tea is that the consumption per head rises between 1855 and 1865 from 2·3 to 3·3 lbs., or 43 per cent.; between 1865 and 1875 from 3·3 to 4·4 lbs., or 33 per cent.; and between 1875 and 1885 from 4·4 to 5 lbs., or 13½ per cent. In sugar the progression is in the first period from 30·6 to 39·8 lbs. per head, or 30 per cent.; in the second period from 39·8 to 62·7 lbs., or 58 per cent.; and in the third period from 62·7 to 74·3 lbs., or 19 per cent. only. In the last ten years in both cases the rate of increase is less than in the twenty years before.

These facts, I need hardly say, would be strengthened by a reference to the consumption of spirits and beer, the decline in the former being especially notorious. In tobacco again in the last ten years there has been no increase of the consumption per head; which contrasts with a rapid increase in the period just before—viz., from about 1·31 lb. per head in 1865 to 1·46 lb. per head in 1875.

No doubt the observation here applies that the utmost prosperity would obviously be consistent with a slower rate of increase per head from period to period in the consumption of these articles, and with, in the end, a cessation of the rate of increase altogether. The consumption of some articles may attain a comparatively stationary state, the increased resources of the community being devoted to new articles. But here, again, we have to observe the necessity for explanation. The indications are no longer so sure and obvious in all directions as they were.

It is difficult, indeed, to resist the impression made when we put all the facts together, leaving out of sight for a moment those of values only. We are able to affirm positively—(*a*) That the production of coal, iron, and other staple articles has been at a less rate in the last ten years than formerly; (*b*) that this has taken place when agricultural production has been notoriously stationary, and when the production of other articles such as copper, lead, &c., has positively diminished; (*c*) that there has been a similar falling off in the rate of advance in the great textile industries; (*d*) that the receipts from railway traffic and the figures of shipping in the foreign trade show a corresponding slackening in the rate of increase in the business movement; and (*e*) that the figures as to consumption of leading articles, such as tea, sugar, spirits, and tobacco, in showing a similar decline in the rate of increase, and, in some cases, a diminution, are at least not in contradiction with the other facts stated, although it may be allowed that there was no antecedent reason to expect an indefinite continuance of a former rate of increase.

From these facts, however, we may qualify them—and many qualifications have already been suggested, while others could be added—it seems tolerably safe to draw the conclusion that there has probably been a falling off in the rate of material increase generally. The income tax assessment figures, though they could not be taken by themselves in such a question, are, at least, not in contradiction, and there is nothing the other way when we deal with these main figures only. I should not put the conclusion, however, as more than highly probable. Some general explanation of the facts may be possible on the hypothesis that there is no real decline in the rate of growth generally at all; that the usual signs for various reasons have become more difficult to read; that owing to the advance already made, the real growth of the country and, to some extent, of other countries, has taken a new direction; and that the utmost caution must be used in forming final conclusions on the subject. But the conclusion of a check having occurred to the former rate of growth may be assumed meanwhile for the purposes of discussion. The attempted explanation of the causes of change, on the hypothesis that there is a real change, may help to throw light on the question of the reality of the change itself.

II.

Various explanations are suggested, then, not only for a decline in the rate of our progress, but for actual retrogression. Let us look at the principal of these explanations in their order, and see whether they can account for the facts: either for actual retrogression, or for a decline in the general rate of material growth equal to what some of the particular facts above cited, if they were significant of a general change in the rate of growth, imply—a decline, say, from a rate of growth amounting to 40 per cent. in ten years to one of 20 per cent. only in the same period.

One of the most common explanations, then, as we all know, is foreign competition. The explanation has been discredited because of the exaggeration of the alleged evil to be explained; but it may possibly be a good enough explanation of the actual facts when they are looked at in a proper way. In this light, then, the assertion as to foreign competition would be found to mean that foreigners are taking away from us some business we should otherwise have had, and that, consequently, although our business on the whole increases from year to year, it does not increase so fast as when foreign competition was less. Those who talk most about foreign competition have actually in their mind the unfair element in that competition, the stimulus which the Governments of some foreign countries give or attempt to give to particular industries by means, on the one hand, of high tariffs, keeping out the goods we should otherwise send to such countries, and giving their home industry of the same kind a monopoly which sometimes enables them to produce a surplus they can sell ruinously cheap abroad; and by means, on the other hand, of direct bounties which enable certain industries to compete in the home market of the United Kingdom itself, as well as in foreign markets. But there is a natural foreign competition as well as a stimulated foreign competition to be considered, and it may be the more formidable of the two.

Dealing first with the stimulated competition, the most obvious criticism on this alleged explanation of the recent decline in the rate of increase of our material progress is that the stimulus given by foreign Governments in recent years has not been increasing, or at any rate not materially increasing, so as to account for the change in question. People forget very quickly; otherwise it would not be lost sight of that after 1860, as far as European nations are concerned, there was a great reduction of tariff duties —a change, therefore, in the contrary direction to that stimulus which is alleged to have lately caused a change in the rate of our own development. Since about five or six years ago the movement on the Continent seems again to have been in the direction of higher tariffs. France, Italy, Austria, Germany, and Russia have all shown protectionist leanings of a more or less pronounced kind. Some of our colonies, especially Canada, have moved in the same direction. But, on the whole, these causes as yet have been too newly in operation to affect our industry on a large scale. As a matter of fact, with one exception to be presently noticed, the period from 1860 to 1880 was one in which the effect of the operation of foreign Governments in regard to their tariffs could not be to stimulate additional competition of an injurious kind with us in the way above described, but to take away, if anything, from the stimulus previously given. The changes quite lately brought into operation, if big enough, and if really having the effects supposed, might stimulate foreign competition in the way described in the period now commencing; but, as an explanation of the past facts, it is impossible to urge that foreign competition had recently been more stimulated by additions to tariffs than before, and that in consequence of this stimulus our own rate of advance had been checked.

The one exception to notice is the United States. Immediately after 1860 the civil war in that country broke out, and that war brought with it the adoption of a very high tariff. Curiously enough, however, that tariff operated most against us in the very years, that is, the years before 1875, in which our rate of advance was greater to all appearance than it has lately been. In 1883 there was a great revision of the tariff, having for its general result a slight lowering and not an enhancement of the tariff, and it is with this reduction, that is, with a diminution of the alleged adverse stimulus, that the diminution in our own rate of advance has occurred.

Of course the explanation may be that, although Governments have not themselves been active till quite lately in adding to their tariffs, yet circumstances have occurred to make the former tariffs more injurious in recent years than they were down to 1875. For instance, it may be said that, owing to the fall of prices in recent years, the burden of specific duties has become higher than it was. The duty is nominally unchanged, but by the fall of prices its proportion to the value of the article has become higher. This is no doubt the case to a large extent. On the other hand, *ad valorem* duties have been lowered in precisely the same way. The fall of prices has brought with it a reduction of duty; and especially on articles of English manufacture, where the raw material is obtained from abroad, the reduction of duty, being applicable to the whole price, must certainly have had for effect to render more effective than before the competition of the English manufacturer. Whether on the whole the reduction of *ad valorem* duties consequent on the fall of prices has been sufficient throughout the range of our foreign trade to compensate the virtual increase of the weight of specific duties from the same cause seems to be a nice question. This being the case, it must be very difficult indeed to show that on the whole the weight of foreign tariffs, apart from the action of foreign Governments, has been increased in recent years so as to affect our own growth injuriously.

Foreign tariffs, it may be said, have become more effective for another reason. Manufacturing industry having itself developed abroad, the same amount of protection given to the foreign industry becomes more efficient than it was. But this, of course, raises the question of the effect of natural foreign competition, which will presently be discussed.

So much for the stimulus to foreign competition due to high tariffs. With regard to bounties, very little need be said. They have been the subject of much discussion and agitation for various reasons, and in what I have to say I propose not to touch on the practical question whether these bounties are injurious, and the nature of the political remedies that may or may not be possible. I limit myself strictly to the point, how far any effect which such bounties can have had would account for a diminution in the rate of material growth of the country generally in the last ten years as compared with the ten years just before. Dealing with the question in this strictly limited fashion, what I have to observe first is, that hitherto very few bounties have been complained of, except those on sugar production and refining; and next, that the whole industries of sugar production and refining, important as they are in themselves, hardly count in a question of the general history of the United Kingdom. Even if we refined all the sugar consumed in the United Kingdom and the maximum amount we have ever exported, the whole income from this source, the whole margin, would not exceed about 2 million £ annually, not one six-hundredth part of the income of the people of the United Kingdom; and of this 2 million £, at the worst, we only lose a portion by foreign competition, while all that is really lost, it must be remembered, is not the whole income which would have been gained if a certain portion of our labour and capital had been employed in sugar refining, but only the difference between that income and the income obtained by the employment of the same labour and capital in other directions. The loss to the empire may be greater, because our colonies are concerned in sugar production to the extent at present prices of 5 million to 6 million £ annually, which would probably be somewhat larger but for foreign competition. But it does not seem at all certain that this figure would be increased if foreign bounties were taken away, while in any case the amounts involved are too small to raise any question of foreign bounties having checked the rate of growth of the general industry of the country.

Per contra, of course, the extra cheapness of sugar, alleged to be due to the bounties, must have been so great an advantage to the people of the United Kingdom, saving them perhaps 2 million £ to 3 million £ per annum, that the stimulus thereby given to other industries must apparently have far more than compensated any loss caused by the stimulus of foreign bounties to sugar production and refining abroad. But to enlarge on this point would involve the introduction of controversial matter, which I am anxious to avoid. I am content to show that nothing that can have resulted from sugar bounties could have affected seriously the general rate of material growth in the country.

Mutatis mutandis, the same remarks apply to other foreign bounties, of which indeed the only ones that have been at all heard of are those on shipping. But as yet, at least, the increase of foreign shipping has not been such as to come into comparison with our own increase, while the portion of the increase that can be connected with the operation of bounties is very small. It would be useless to enter into figures on so small a point; but few figures are so well known or accessible as those relating to shipping.

In neither way, then, does there appear to be anything in the assertion that the protectionist action of foreign Governments in recent years can have caused the check alleged to the rate of growth in our industry generally, assuming such a check to have occurred. I may be dispensed, therefore, from entering on the theoretical argument, which I only notice *pour mémoire*, that in the nature of things no enhancement of foreign tariffs and no grants of foreign bounties could really check our own rate of growth, except by checking foreign growth still more, which is not the case we are considering, because the allegation is that foreign competition is increasing at our expense. That I do not insist on this argument is not to be considered as a sign that it is dropped or that I am not fully sensible of its logical completeness. It seems enough at present to fortify it by considerations from actual practical facts which no one can dispute.

The question of an increase of foreign competition from natural causes is more difficult. It is beyond all question, as I have pointed out elsewhere, that foreign competition in every direction from natural causes must continue to increase, and that it has increased greatly in recent years. But when the facts are examined, it does not appear that this competition has been the cause of a check to our own rate of growth. One of the facts most commonly dwelt upon in this connection is the great increase of the imports of foreign manufactured articles into the United Kingdom. But the increase in the last ten years is not more than about 18 million £, taking the facts as recorded in what is known as Mr. Ritchie's Return, viz., from about 37 million £ in the quinquennial period 1870-74 to 55 million £ in the quinquennial period

1880-84, or about 50 per cent.[1] Out of 18 million £ increased imports of such articles it is fair to allow that at least one-half, if not more, is the value of raw material which we should have had to import in any case; so that only 9 million £ represents the value of English labour displaced by these increased imports. Even the whole of this 9 million £ of course is not lost, only the difference between it and the sum which the capital and labour "displaced" earns in some other employment, which may possibly even be a *plus* and not a *minus* difference. If we add articles "partly manufactured" no difference would be made, for the increase here is only from 26 million £ to 28 million £ in the ten years. Such differences, it need not be said, hardly count in the general total of the industry of the country. Further, the rate of increase of these imports was just as great in the period when our own rate of growth was greater, as in the last ten years, the increase in manufactured articles between 1860-64 and 1870-74 being 19 million £, viz., from 18 million £ to 37 million £, or over 100 per cent. as compared with 50 per cent. only in the last ten years, and in articles partly manufactured from 17 million £ to 26 million £, an increase of 9 million £ as compared with an increase of 2 million £ only in the last ten years. Making all allowance for the fall in prices in recent years, these figures will show a greater relative increase of imports of manufactured articles before 1875 than afterwards. It cannot therefore be the increased import of foreign manufactures which has caused the check to our own growth in the last ten years.

But foreigners, it is said, exclude us from their own markets and compete with us in foreign markets. Here again, however, we find that any check which may have occurred to our foreign export trade is itself so small that its effect on the general growth of the country would be almost *nil*. Take it that the check is as great as the diminution in the rate of increase in the movements of shipping, viz., from an increase of 55 per cent. to one of 33 per cent. only, that is, broadly speaking, a diminution of one-third in the rate of increase of our foreign trade, whatever that rate may have been. Assuming that rate to have been the same as the rate of increase in the movements of shipping itself, the change would be from a rate of increase equal to one-half in ten years to a rate of increase equal to about one-third only. Applying these proportions to the exports of British and Irish produce and manufactures, which represent the productive energy of the country devoted to working for foreign exchange, and assuming that ten years ago the value of British labour and industry in the produce and manufactures we exported, due deduction being made for the raw material previously imported, was about 140 million £ (see my "Essays in "Finance," first series, p. 146), then it would appear that if the same range of values had continued, the check to the growth of this trade would have been such that at the end of ten years the British labour represented in it, instead of having increased 50 per cent., viz., from 140 million £ to 210 million £, would have increased one-third only, or from 140 million £ to about 187 million £. The annual difference to the energy of the country developing itself in the foreign trade would on this showing be about 23 million £ only, an insignificant sum compared with the aggregate income of the people of the country; while the country, it must be remembered, does not lose the whole of this sum, but only the difference between it and the sum earned in those employments to which those concerned have resorted, which again may be a *plus* and not a *minus* difference. Even therefore if foreign competition is the cause of a check to our general growth, yet the figures we are dealing with in our foreign trade are such that any visible check to that trade which can have occurred must have been insufficient to cause that apparent diminution in the rate of our material growth generally which has to be explained.

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[1] See Appendix to "First Report of Royal Commission on Trade Depression," p. 130.

It has to be remembered, moreover, that when the figures are studied, and the fall of prices allowed for, it is not in our foreign trade that any check worth mentioning seems to have occurred at all. The diminution in the rate of increase in the movements of shipping is very largely to be accounted for in the way already explained, viz., by the fact that the increase just before 1875 was largely owing to the multiplication of lines of steamers, and that a framework had then been provided up to which the traffic has since grown. Even an increase of one-third in the movements in the last ten years may thus show as great an increase in real business as an increase of 50 or 60 per cent. in the movements in the twenty years before. Foreign competition, even from natural causes, is thus insufficient to account for the diminution in the rate of increase of our material growth in the last ten years.

These figures may be put directly another way. The increase of our foreign exports per head between 1860-64 and 1870-74 was from 4*l.* 14*s.* 11*d.* to 7*l.* 7*s.* 5*d.*, or about 55 per cent., and allowing for an average rise of prices between the two dates, may be put as having been at the extreme about 50 per cent. Between 1870-74 and 1880-84, instead of an increase, there is a decrease, viz., from 7*l.* 7*s.* 5*d.* to 6*l.* 12*s.* 9*d.*, but deducting about one-third from the former figure for the fall in prices, the real increase in the last ten years would appear to be as from 4*l.* 16*s.* 3*d.* to 6*l.* 12*s.* 9*d.*, or over 35 per cent. The difference in the rate of increase in the last ten years compared with the previous ten is thus the difference between 35 and 50 per cent. only, equal to about 21 million £ annually on the amount of 140 million £ assumed to represent the value of British industry in our foreign exports, deduction being made for the value of raw material included. A deduction of this sort from the annual income of the country is too small to account for such a check to the rate of our growth generally as that we are now discussing as probable, especially when we recollect that the labour is only diverted, and it is not the whole 21 million £ that is lost, but only the difference between that sum and what is otherwise earned, which may even be a *plus* and not a *minus* difference.

To bring the matter to a point, an increase of 40 per cent. in the income of the country in ten years would, on an assumed income of 1,000 millions only in 1875—and the figure must then have been more—have brought the income up to 1,400 millions; an increase of 20 per cent. would have brought it up to 1,200 millions only, a difference of 200 millions, which must have arisen from the alleged difference in the rate of our material growth in question if it had occurred. Clearly nothing can have happened in our foreign trade to account for anything more than the smallest fraction of such a difference. The figures are altogether too small. We may repeat again, then, that it is not the check to our foreign trade which foreign competition may have caused to which we can ascribe the recent check to our general rate of growth.

I need hardly add that in point of theory foreign competition was not likely to have the effect stated. I have set forth elsewhere in an elaborate essay (" Essays in Finance," second series, " Foreign " Manufactures and English Trade," p. 240) the reasons for holding this opinion; why it is, in fact, that as foreign nations grow richer we should be better off absolutely than if they were to remain poor, though relatively they might advance more than we do. But, whatever theory may say, in point of fact the check to the rate of our material growth cannot, for the reasons stated, have been due to anything which has happened to our foreign trade.

Another explanation which has been suggested, and to which I have myself been inclined to attach considerable weight as being plainly, as far as it goes, a *vera causa*, is the extent to which the hours of labour have been reduced in many employments in consequence of the improvement in the condition of the working classes in the last half century, and the growth of a disposition to take things easier, which has been the result of the general prosperity of the country. Such causes, when they exist, and when they are brought into operation, must tend to diminish the rate of material growth in a country as compared with a period just before when they were not in operation. If we could suppose them brought into operation suddenly, all other things, such as the progress and development of invention, remaining the same, such a reduction of hours of labour and growth of a disposition to take things easy must produce a check to the former rate of growth.

After some consideration, however, although there is no doubt of the general tendency of the causes referred to, I begin to doubt whether they would explain adequately such a check to the rate of material growth generally throughout the country as is assumed to have occurred. As regards the shortening of the hours of labour, which is the more definite fact to be dealt with, it cannot but be observed that the shortening has by no means been universal. It has been conspicuous among certain trades organised into trade unions; but the unions, after all, only include about a tenth part of the labour of the country. There has been no such conspicuous shortening of the hours of labour among professional men, clerks, domestic servants, and many others whose labour is an essential part of the general sum total. Next—and this is perhaps even more important—the shortening of the hours of labour is not coincident with the beginning of the last ten years, though it has been in full operation for the whole of that period, but rather with the beginning or middle of the previous ten years, viz., 1865-75; so that it should have been fully in operation upon the production of 1875; and the check to our rate of growth if due to this cause should thus have been felt between 1865 and 1875, rather than between the latter date and the present time. The same with the general disposition to take things easy. This disposition did not spring up in a day in 1875, but was probably as effective as a cause of change in the earlier as in the later period. It must count for something as a cause of the annual production of the country being less at a given moment than it would otherwise be; but in comparing two periods what we have to consider is whether the growth of this disposition has been greater in one period than in another; and there are no data to support such a conclusion as regards the last ten years compared with the previous ten.

We must apparently, therefore, reject this explanation also. It is not adequate to account for the apparent change that has occurred in the rate of our growth from the year 1875 as compared with the period just before. Our progress in periods previous to 1875 took place in spite of the operation of causes of a similar kind which were then in operation, and there is no proof at all that the shortening of the hours of labour and the growth of a disposition to take things easy have been greater since 1875 as compared with the period just before than they were between 1865 and 1875 as compared with the period just before that. What is wanted is a new cause beginning to operate in or about 1875, and the shortening of the hours of labour and the growth of a disposition to take things easy do not answer that description sufficiently. Something of the apparent change may be due to an acceleration in recent years of the growth of a disposition to take things easy, but on the whole the explanation halts when we make a strict comparison.

Another cause which may properly be assigned as a *vera causa* of a check to the rate of material growth in the country is the unfavourable weather to agriculture, and the generally unprofitable conditions of that industry in recent years. *Pro tanto* such influences would make agricultural production less to-day than it would otherwise be. Employment in that industry would also be diminished comparatively, and perhaps absolutely, and a check to production generally would take place while labour was seeking new fields. But the check arising in this manner, as far as the general growth is concerned, has obviously not been very great. More land in proportion has been turned into permanent pasture, but very little land has gone out of cultivation altogether, and even the amount under the plough has not much diminished. Agricultural labour, in somewhat greater proportion than before, has been obliged to seek other employments; the flow of population from country to town has been increased somewhat; but nothing new has happened to diminish production generally to a serious extent, and it is a new cause, it must be remembered, for which we are seeking. As far as unfavourable weather is concerned, again, that is only a temporary evil. One year with another, the weather is not worse now than at any former time; the remarkably unfavourable weather which lasted from 1874 to 1880 has passed. The other conditions unfavourable to agriculture, especially foreign competition, are more enduring; but these seem much more unfavourable to rent than to production itself, which is the point now under consideration; and we do not know that they will be permanent at all when prices and wages are fully adjusted.

The disturbance to industry by the fall of prices generally is also a *vera causa* of a check to the rate of material growth. But the effect of such a cause seems to be confined within narrow limits, and it is not a new cause. It occurs in every time of depression due to discredit, being partly the effect and partly the cause of the depression itself. All that is new recently is the extreme degree of the fall, and I must express the greatest doubt whether a mere difference of degree aggravates materially the periodical disturbance of industry, tending to check production, which a fall of prices from a high to a low level causes. So far as past experience has gone, at any rate, no such cause has been known to check production to any material extent. If any such cause tended to have a serious effect we should witness the results every time there is a shrinkage of values owing to the contraction and appreciation of an inconvertible paper currency, and I am not aware of any such contraction having had the effect described on production, though the effect in producing a feeling of depression is beyond all question. The facts as to the great contraction in this country between 1815 and 1820 are on record, while the experience of the United States after the civil war is also fresh in everyone's recollection. Contraction of currency and fall of prices, though they are painful things, do not stop production materially.

Another explanation suggested is that there is in fact no antecedent reason for supposing that the rate of material growth in a community should always be at the same rate—that a community may, as it were, get "to the top" as regards its development under given conditions, and then its advance should be either less rapid than it had been or it should even become stationary. The defect of this explanation is that it assumes the very thing which would have to be proved. Is there any other sign, except the alleged check to the rate of our material growth itself, that in or about the year 1875 this country got "to the top?" It has, moreover, to be considered that on *à priori* grounds it is most unlikely a community would get to the top *per saltum*, and then so great a change should occur as the apparent change we are considering. The persistence of internal conditions in a given mass of humanity is a thing we may safely assume, and if these conditions are consistent with a given rate of development in one period of ten years, it is most unlikely that, save for an alteration of external conditions, there would be another rate of development in the succeeding ten years. Human nature and capacities do not change like that. Scientific opinion, I believe, is also to the effect that the progress of invention, and of the practical working of inventions, which have been the main cause of our material growth in the past, have been going on in the last ten years, are still going on, and are likely to go on in the near future, at as great a rate as at any time in the last fifty years. Except, as already said, the apparent check to the rate of our material growth itself, there is no sign anywhere of our having got to the top, so that a stationary condition economically, or a condition nearly approaching it, has been reached.

Last of all, it is urged that the diminution in the material of our growth, which is in question, must be due to the fact that we are losing the natural advantages of coal and iron which we formerly had in comparison with the rest of the world. This is perhaps only another way of saying that we have got to the top by comparison, though the community of nations generally has not got to the top, and another way of saying also that foreign competition affects us more than it formerly did—an argument already dealt with. But the question whether coal and iron at home are really so indispensable to our material growth as is sometimes assumed, appears itself so important that I may be excused for specially discussing this question, notwithstanding that it has virtually been disposed of, as far as any explanation of past facts is concerned, by what has been already said.

The argument proceeds on the supposition—which is no doubt well founded in the abstract and as far as the past experience of mankind is concerned—that in addition to natural capacities of its own a community requires for its prosperity certain natural advantages, fertility of soil, rich and easily-worked mines, a genial climate in which labour may conveniently be carried on, and so forth. A community possessing all these things, or the like things, will flourish, but as it ceases, to lose any of them its prosperity must become precarious, and population must flow to the places where they can be secured. Of course climate is not a thing which changes, as far as any practical experience is concerned; but relatively the advantage of a fertile soil may be lost, as England has lately lost it in comparison with the United States and other new countries, its soil having become inadequate for the whole population; and still more the advantage of mines, especially mines of coal and iron, on which the miscellaneous industries of a manufacturing country depend, may be lost. Hence it is said the check to our rate of growth in recent years. We have long since lost our agricultural advantages by comparison. Now we are also beginning to lose the special advantages which coal and iron have given. Our mines are becoming less rich than those of foreign countries, and the balance is turning against us. Why should not population relatively flow from England to the United States and other countries as it has passed within the limits of the United Kingdom itself from Cornwall and Sussex to Staffordshire, Lancashire, Yorkshire, and the north? In this view the coal famine of 1873 was the sign of a check such as Mr. Jevons anticipated. What has happened since is only a sequence of the like causes.

I need not repeat in opposition to this view what has already been said as to the inadequacy of any actual decline in our foreign trade to account for such a check to our general growth as is supposed to have occurred. If the loss of our natural advantages of coal and iron in addition to agriculture are having the effects supposed, we ought to witness them in our foreign trade, and in fact we do not witness them to the extent required for the production of the phenomenon in question.

What I wish now specially to urge is that in consequence of the progress of invention and the practical application of inventions in modern times the theory itself has begun to be less true generally than it has been. It is no longer so necessary, as it once was, as in fact it always has been until very lately, that people should live where their food and raw materials are grown. The industry of the world having become more and more manufacturing and, if one may say so, artistic, and less agricultural and extractive, the natural advantages of a fertile soil and rich mines are less important to a manufacturing community than they were at any former period of the world's history, because of the new cheapness of conveyance. Under the new conditions, I believe it is impossible to doubt, climate, accumulated wealth, acquired manufacturing skill, concentration of population, become more important factors than mere juxtaposition to the natural advantages of fertile soil and rich mines. The facts seem at any rate worth investigating, judging by what has happened in England and other old countries in the last half century, and by what is still happening there.

Take first the question of food. Wheat is now conveyed from the American Far West to Liverpool and London and any other ports in the Old World for something like 5*s.* per quarter—equal to about half a farthing on the pound of bread, or a halfpenny on the quartern loaf. The difference between the towns of a country with fertile soil, therefore, and the towns of a country with inadequate soil is represented by this small difference in the price of bread. At about 5*d.* the quartern loaf the staff of life may be about 10 per cent. cheaper in the fertile country than it is in a country which does not grow its own food at all, and which may be thousands of miles away. As the staff of life only enters into the expenditure of the artisan to the extent of 20 per cent. at the outside, and into the expenditure of richer classes to a smaller extent, the difference on the whole income of a community made by their living where the staff of life would be cheaper would be less than 2 per cent.—too small to tell against other advantages which may be credited to them. What is true of wheat is even more true of meat and other more valuable articles of food, where the cost of conveyance makes a less difference in the proportionate value of the food *in situ* and its value at a distant point. The same more and more with raw materials. Cotton and such articles cost so little to transport that the manufacturing may as well go on in Lancashire or any other part of the Old World as *in situ*, or nearly *in situ;* and even as regards metals or minerals, except coal and perhaps iron, the same rule applies, the cost of conveyance being as nothing in proportion to the value of the raw material itself. As regards coal and iron, moreover, there are many places where they are not in absolute juxtaposition, and if they have to be conveyed at all they may as well be conveyed to a common centre. Iron ore and iron at any rate are beginning to be articles of import into the old countries of Europe, to which the cost, in fact, offers very little difficulty. The additional cost to the miscellaneous manufacturing of a country through its having to bring iron and coal from a distance may thus be quite inconsiderable, and apparently is becoming more and more inconsiderable. As regards raw materials generally, it has also to be considered that, owing to their immense variety, there is an undoubted convenience in a common manufacturing centre to which they can be brought. Hitherto they may have come to England and other old countries of Europe in part because coal and iron were abundant there in juxtaposition; but the habit once set up, there seems no reason why they should not concentrate themselves on the old manufacturing centres. The ruder parts of the coal and iron industry may be attracted to other places, but the higher branches of manufacturing will be at no disadvantage if carried on at the old centres.

On the other hand, the old centres will retain the advantages, which are obviously very great, of climate, accumulated wealth, acquired skill, and concentration of population. That population under the new conditions is to go from them merely because they do not grow food which can be transported to them at the cost of a mere fraction of the aggregate income, and because they have not coal and iron in abundance and in juxtaposition, that abundance and juxtaposition, owing again to the diminished cost of conveyance, being no longer so indispensable as it was to the higher branches of manufacturing, appears certainly to be a "large order." What I have to suggest most strongly at any rate is that the advantages I have spoken of as possessed by old manufacturing centres are not unlikely to tell more and more under the new conditions, and that the indispensability of coal and iron is no longer to be spoken of as what it has been in the last century, during which apparently England owed so much of its precedence in manufacturing power to these causes.

To the same effect we may urge the specially great increase of the efficiency of coal in recent years. Cheap coal *in situ* cannot be relatively so important as it was in days when five or ten tons of coal were required to do the work which can now be done by one.

The truth is that the whole change that has been occurring is only a continuation of much larger historical changes. There has almost always in English history been some one industry that was supposed to be king. In the Middle Ages it was the growth and export of raw wool; last century it was the woollen manufacture itself; early in this century and down to a very late date cotton was king; more lately, since the beginning of the railway and steamship era, it has been coal and iron. How do we know, how can we know, that coal and iron are to reign indefinitely, any more than wool, or the woollen manufacture, or cotton themselves have done? Changes are always going on, and for that reason I believe we should attach the more importance to the increasing signs that it is no longer necessary or indispensable for prosperous communities to live where their food and raw materials are grown; that there may be advantages of climate, of accumulated wealth, of acquired skill, of concentration of population which are now, under the new conditions, overwhelmingly more important. It would be absurd to dogmatize in such a matter. I hope, however, I have said enough to those who care to reflect to satisfy them that the indispensability even of coal and iron to the continuance of our material growth is no longer to be assumed, that there are wholly new conditions to be considered.

To come back to the practical point in all this discussion. Not only is there no sign in anything that has yet happened that the apparent check to our former rate of material growth is due to the loss of natural advantages which we once possessed, but the theory of natural advantages itself requires to be revised. Equally in this way as in the other ways that have been discussed, it is impossible to account for the apparent check to the former rate of our material growth which has been observed.

III.

Having carried matters so far, however, and having found the insufficiency of the various causes which have been assigned for the check to our former rate of material growth, because they have not produced the sort of effect in detail which they ought to have produced so as to lead to the general effect alleged, or because they existed quite as much when the rate of growth was great as in recent years when a diminution has apparently been observed, it would seem expedient to inquire whether, in spite of the accumulation of signs to that effect, the apparent check to our rate of growth may, after all, not be a real one. To some extent I think we must conclude that this is the case. There are other facts which are inconsistent with a real and permanent check such as has been in question, and a general explanation of the special phenomena of arrest seems possible without supposing any such real check.

The first broad fact that does not seem quite reconcilable with the fact of a real diminution of the kind alleged in the rate of material growth generally is the real as distinguished from the apparent growth of the income tax assessments when allowance is made for the fall of prices which affect, as we have seen, all aggregate values. Assuming the fall of prices to be about 20 per cent., then we must add one-fourth to the assessments in 1885 to get the proper figure for comparison with 1875. The total of 631 millions for 1885 would thus become 787 millions, which is a falling-off of 35 millions, or 4 per cent. only, from the figure of 822 millions, which should have been reached if the rate of growth had been the same between 1875 and 1885 as between 1865 and 1875. Allowing for the raising of the lower limit of the income tax in the interval, this is really no decrease at all.

Of course this comparison may be thrown out if we are to assume the difference made by the fall of prices on the income tax assessments to be 15 or 10 per cent. only, instead of 20 per cent. But a point like this would involve a most elaborate discussion, for which this address would hardly be the occasion. I hope to find a better opportunity shortly in a continuation of my essay of ten years ago on the accumulations of capital in the United Kingdom. There is no doubt, however, that an allowance must be made for the difference of prices, and when any such allowance is made, the rate of material growth would not appear to be so very much less between 1875 and 1885 than in the period just before, as it does in the above figures.

Another broad fact not easily reconcilable with the fact of a great diminution in the real rate of material growth in the last ten years is the steadiness of the increase of population and the absence of any sign, such as an increase in the proportion of pauperism, indicating that the people are less fully employed than they were. The increasing numbers must either be employed or unemployed, and if there is an increase in the proportion of the unemployed the fact should be revealed in the returns of pauperism somehow. The existence of trade unions, no doubt, prevents many workmen coming on the rates who might formerly have done so, but there are large masses of workmen, the most likely to feel the brunt of want of employment, to whom this explanation would not apply.

What we find, however, is that population has increased as follows: between 1855 and 1865 from 27,800,000 to 29,900,000, or $7\frac{1}{2}$ per cent.; between 1865 and 1875 from 29,900,000 to 32,800,000, or nearly 10 per cent.; and between 1875 and 1885 from 32.800,000 to 36,300,000, or over 10 per cent. If it is considered that the figures are not fairly comparable for the early period, owing to the specially large emigration from Ireland, which took away from the apparent numbers of the United Kingdom as a whole, but still allowed of as great an increase in the manufacturing parts of the country as there has been later, then we may take the figures for England only, and what we find is—between 1855 and 1865 an increase from 18,800,000 to 21,100,000, or 12½ per cent.; between 1865 and 1875 from 21,100,000 to 24,000,000, or nearly 14 per cent.; and between 1875 and 1885 from 24,000,000 to 27,500,000, or 14½ per cent. Whether, therefore, we take the figures for the United Kingdom or for England only, what we find is a greater increase of population in the last ten years than in either of the previous decades when the rate of material growth seemed so much greater. If there had been such real diminution in the rate of material growth, ought there not to have been some increase in the want of employment and in pauperism to correspond?

It is one of the most notorious facts of the case, however, that there has been no increase, but instead a very steady decrease of pauperism, excepting in Ireland, which is so small, however, as not to affect the general result. As regards England, the figures are very striking indeed. The average number of paupers and proportion to population have been as follows in quinquennial periods in England since 1885:—

	Number of Paupers.	Proportion to Population per Cent.
1855–59	895,000	4·7
'60–64	948,000	4·7
'65–69	962,000	4·5
'70–74	952,000	4·2
'75–79	753,000	3·1
'80–84	787,000	3·0

Thus there has been a steady diminution in the proportion to the population all through, accompanied by a diminution in the absolute numbers between 1865-69 and 1875-79, though there has since been a slight increase. In spite of all that can be urged as to a more stringent poor law administration having made all the difference, it is difficult to believe that a real falling off of a serious kind in the rate of our material growth in late years as compared with the period just before should not have led to some real increase of pauperism. Change of administration may do much, but it cannot alter the effect of any serious increase in the want of employment in any way.

The corresponding figures as to Scotland are much the same:—

	Number of Paupers.	Proportion to Population per Cent.
1855–59	123,000	4·2
'60–64	125,000	4·2
'65–69	131,000	4·3
'70–74	123,000	3·7
'75–79	103,000	2·9
'80–84	100,000	2·7

Here there is the same steady diminution in the proportion of pauperism to population all through as we have seen in the case of England, accompanied in this case by a steady diminution of the absolute number of paupers since 1865-69. The Scotch administration has been totally independent of the English, but the same results are produced.

In Ireland, as already hinted, the history has been different. There has been an increase in the pauperism accompanied by a decline of population. But Ireland is too small to affect the general result.

We are thus confronted by the fact that if there had been a real check of a serious kind to the rate of our material growth in the last ten years as compared with the ten years just before, there ought to have been some increase in the want of employment and in pauperism, but instead of there being such an increase there is a decline. The population apparently, while increasing even more rapidly in the last ten years than before, has been more fully employed than before. To make these facts consistent with a check to the rate of our material growth we must contrive some such hypothesis as that employment has been more diffused as regards numbers, but the aggregate amount of it has fallen off—another form of the hypothesis as to the effect of shorter hours of labour already discussed; but a little reflection will show that any such hypothesis is hardly admissible. It is difficult to imagine any change in the conditions of employment in so short a time which would make it possible for larger numbers to be employed along with a diminution in the aggregate amount of employment itself.

Another fact corresponding to this decrease of pauperism is the steady increase of savings bank deposits and depositors. These deposits are not, of course, the deposits of working classes only, technically so called. They include the smaller class of tradesmen and the lower middle classes generally. But *quantum valeant*, the facts as to a growth of deposits and depositors should reflect the condition of the country generally in much the same way as the returns of pauperism. What we find then is, as regards deposits, that the increase between 1855 and 1865 was from 34,300,000*l.* to 45,300,000*l.*, or about one-third; between 1865 and 1875 from 45,300,000*l.* to 67,600,000*l.*, or about one-half; and between 1875 and 1885 from 67,600,000*l.* to 94,053,000*l.*, or just about 40 per cent.—a less increase than in the previous ten years, but not really less, perhaps, if allowance is made for the fall of prices in the interval, and in any case a very large increase. Then, as regards depositors, what we find is an increase between 1855 and 1865 from 1,304,000 to 2,079,000, or 59 per cent.;

between 1865 and 1875 from 2,079,000 to 3,256,000, or 56 per cent.; and between 1875 and 1885 from 3,256,000 to over 5 million, or over 50 per cent. Whatever special explanations there may be, facts like these are at least not inconsistent with a fuller employment of the population in the last ten years than in the previous ten.

Yet another fact tending to the same conclusion may be referred to. The stationariness or slow growth of the income tax assessments in general in the last ten years, as compared with the rapid increase in the ten years just before, has already been referred to as one of the signs indicating a check in the rate of advance in our material growth. But when the returns are examined in detail there is one class of assessments, more significant, perhaps, than any, of the general condition of the nation, viz., houses, which is found to exhibit as great an increase in the last ten years as in the previous decade. Between 1865 and 1875 the increase in the item of houses in the income tax assessments in the United Kingdom was from 68,800,000*l.* to 94,600,000*l.*, or just about 37 per cent. In the following ten years the increase was from 94,600,000*l.* to 128,500,000*l.*, or just about 36 per cent. In "houses," then, as yet there is no sign of any check to the general rate of the material growth of the country. Allowing, in fact, for the great fall in prices in the last ten years, the real increase in houses would seem to have been more in the last ten years than in the ten years just before.

Other facts, such as the increase of Post Office business, may be referred to as tending to the same conclusion. But there is no need to multiply facts. If no hypothesis is to be accepted except one that reconciles all the facts, then these facts as to the increase of population, diminution of pauperism, increase of savings bank deposits and depositors, increase of houses, must all be taken into account, as well as those signs as regards production and other factors, which have usually been most dwelt upon in discussing the question of the accumulation of wealth and the material growth of the people. If the signs of a check to production in some directions can be reconciled with the fact of an unchecked continuance of the former rate of growth generally, then the later facts cited as to increase of population, diminution of pauperism, and the like, may be allowed to have their natural interpretation and to be conclusive on the point.

Such a general explanation, then, of the facts as to production in leading industries and the like, referred to in the earlier part of this address, consistent with the fact that there is no serious falling off in the rate of our material growth generally, is to be found in the supposition that industry by a natural law is becoming more and more miscellaneous, and that as populations develop the disproportionate growth of the numbers employed in such miscellaneous industries, and in what may be called incorporeal functions, that is as teachers, artists, and the like, prevents the increase of staple products continuing at the former rate. This supposition, it will be found, has a good deal to support it in the actual facts as to industry and population in recent years.

The foreign trade shows some sign of the change that is going on. Looking through the list of export articles some remarkable developments are to be noticed. The following short table speaks for itself:—

Exports of the undermentioned Articles in the Years stated, with the Rates of Increase in 1855-65, 1865-75, *and* 1875-85 *compared.*

		Quantities Exported.				Increase per Cent.		
		1855.	1865.	1875.	1885.	1855-65.	1865-75.	1875-85.
Candles	mln. lbs.	4	4	5·3	7·8	Nil	33	47
Cordage and twine	1,000 cwts.	110	168	111	177	53	– 34†	59
Plate glass	mln. sq. ft.	0·3	0·6	1·6	3·9	100	166	143
Jute yarn	mln. lbs.	Not stated	4·9	15·9	30·7	—	224	93
,, manufacture	mln yds.	,,	15·4	102·1	215	—	563	110
Iron hoops, sheets, &c.	1,000 tons	,,	116	204	331	—	76	62
Tinned plates	,,	,,	63	138	298	—	119	116
Other wrought iron	,,	,,	214	239	348	—	12	45
Oil and floor cloth........	mln. sq. yds.	0·5	2·4	6·3	11·3	380	162	79
Paper other than hangings	1,000 cwts.	106·1*	145	319	733	37	120	130
Dressed skins and furs	mlns.	Not	stated	0·37	3·45	—	—	832
Soap	1,000 cwts.	205	140	251	402	–32†	79	60
Spirits	mln. gals.	3·8	2·0	1·0	2·7	–47†	– 50†	170
Unenumerated, values .	mlns.	—	—	£9·7	£10·6	—	—	10

* 1858, not separately stated before. † Decrease.

Thus there are not a few articles, of which jute is a conspicuous example, in which there has been an entirely new industry established within a comparatively short period; and though the percentage of increase may not in all be so great in the last ten years as in the previous ten just because the industry is so wholly new, yet the amount of the increase is as great or greater. In other articles, such as soap and British spirits, there is a new start in the last ten years after a decline in the previous periods. Such cases as oil and floor cloth, paper other than hangings, and plate glass are also specially noticeable as practically new trades. The list I am satisfied could be considerably extended, but I am giving it mainly by way of illustration. Finally, there is the item of other articles not separately specified—an item which is always changing in the statistical abstract because every few years one or more articles grow into sufficient importance to require separate mention, so that any extended comparison of this item for a long series of years is impossible. Still it is ever growing, and what we find in the last ten years is that, in spite of the fall of prices, the growth is from 9,700,000*l.* to 10,600,000*l.*, or nearly 10 per cent. Many of the articles referred to, it is plain, cannot run into much money, but the indications of a tendency are none the less clear. What is happening in the foreign trade is happening, we may be sure, in the home trade as well, of which in another way the increase in the imports of foreign manufactures, already referred to in another connection, is really a sign, as it implies the growth of miscellaneous wants among the consumers.

The census figures as to occupations tend, I believe, to confirm this observation as to the special growth of miscellaneous industries, but the discussion of the figures would require more preparation than I have had time for, and perhaps more space than can well be spared.

As to the growth of incorporeal functions, which is another fact significant of the supposed change in the direction of the employments of the people, I propose to appeal to the testimony of the census figures. I need refer on this head only to the paper read some time ago to the Statistical Society by Mr. Booth. Among those classes of population whose numbers in England and Wales in the last ten years have shown a disproportionate growth are the following:—

Numbers and Percentage of Self-supporting Population Employed.

	Numbers.		Percentage.	
	1871.	1881.	1871.	1881.
Transport	524,000	654,000	4·9	5·6
Commercial class	119,000	225,000	1·1	1·9
Art and amusement	38,000	47,000	0·3	0·4
Literature and science	7,000	9,000	—	0·1
Education	135,000	183,000	1·3	1·6
Indefinite	124,000	269,000	1·2	2·3
Total	947,000	1,387,000	8·8	11·9

Following the indication of these figures, whatever qualification they may be subject to, we are apparently justified in saying that an increasing part of the population has been lately applied to the creation of incorporeal products. Their employment is industrial all the same. The products are consumed as they are produced, but the production is none the less real. If a nation chooses to produce more largely in this form as it becomes more prosperous, so that there is less development than was formerly the case in what were known as staple industries, it need not be becoming poorer for that reason; all that is happening is that its wealth and income are taking a different shape.

It is quite conceivable, then, and is in truth not improbable, that a check to the former rate of material growth in certain directions may have taken place of late years without any corresponding check to the rate of material growth generally, which would seem to be inconsistent with such facts as the growth of population, diminution of pauperism, increase of houses, and the like. The truth would seem to be that with the growth of staple industries, such as cotton, wool, coal, and iron, up to a point, there being reasons for the remarkably quick development of each for many years up to 1875, there comes a growth of new wants, the satisfaction of which drafts a portion of the national energy in new directions. Just because certain staples developed themselves greatly between 1855 and 1875 the time was likely to arrive when they would grow not quite so fast. For the same reason the rapid increase for a certain period in the consumption per head of articles like sugar and tea was likely to be followed by a less rapid increase, the wants of consumers taking a new direction. Probably owing to the more and more miscellaneous character of modern industry, it will become more and more difficult to follow its development by dealing with staple articles only, while changes in aggregate values are untrustworthy as indications of real changes owing to changes in prices. Already there seems to be no doubt the staple articles are no longer a sufficient indication.

A supplementary explanation may be added which helps to explain another difficulty in the matter by which people are puzzled. I can imagine them saying that is all very well to pooh-pooh the non-increase or slower increase of the production of staple articles, and to assume that industry is becoming more and more miscellaneous; but other countries go on increasing their production of these same staple articles. The increase of the manufactures of cotton, wool, coal, and iron in Germany and the United States, they will say, has in recent years been greater in proportion than in England, which is undoubtedly true. The explanation I have to suggest, however, is that the competition with the leading manufacturing country, which England still is, is naturally in the staple articles where manufacturing has been reduced to a system, the newer and more difficult manufactures and the newer developments of industry generally falling as a rule to the older country. Even in foreign countries, however, there are signs of slower growth of recent years in the staple articles as compared with the period just before. In Germany, for instance, the production of coal increased between 1860 and 1866 (I take the years which I find available in Dr. Neumann Spallart's "Uebersichten") from 12,300,000 tons to 28,200,000, or nearly 129 per cent.; between 1866 and 1876 the increase was from the figure stated to about 50 million tons, or about 77 per cent. only; between 1876 and 1885, another period of ten years, from the figure stated to 74 million tons, or less than 50 per cent.—a rapidly diminishing rate of increase. In the United States of America the corresponding figures for coal are 15, 22, 50, and 103 million tons, showing a greater increase than in Germany, but still a rather less rate of increase since 1876 than in the ten years before. The experience as to the iron production would seem to be different, the increase in the United States and Germany having been enormously rapid in the last ten years; but I have not been able here to carry the figures far enough back for comparison. Still the facts as to coal in Germany are enough to show how rapidly the rate of increase of growth may fall off when a certain point is reached, and that the experience of the United Kingdom is by no means exceptional. As the staple articles develop abroad the rate of increase in such articles will diminish too, and foreign industry in turn will become more and more miscellaneous.

The conclusion would thus be that there is nothing unaccountable in the course of industry in the United Kingdom in the last ten years. In certain staple industries the rate of increase has been less than it was in the ten years just before, but there would seem to have been no increase or little increase in the want of employment generally, while there is reason to believe that certain miscellaneous industries have grown at a greater rate than the staple industries, or have grown into wholly new being, and that there has also been some diversion of industry in directions where the products are incorporeal. These facts also correspond with what is going on abroad, a tendency to decline in the rate of increase of staple articles of production being general, and industry everywhere following the law of becoming more miscellaneous. Abroad also, we may be sure, as nations increase in wealth the diversion of industry in directions where the products are incorporeal will also take place. What the whole facts seem to bring out, therefore, is a change in the direction of industry of a most interesting kind. If we are to believe that the progress of invention and of the application of invention to human wants continues and increases, no other explanation seems possible of the apparent check to the rate of material growth which seems to be so nearly demonstrated by some of the statistics most commonly appealed to in such questions.

At the same time I must apply the remark which I applied at the earlier stage to the opposite conclusion that there had been a real check to the rate of increase in our material growth. When the main statistics bearing on a particular point all indicate the same conclusion, it is not difficult to reason from them and to convince all who study them; but when the indications are apparently in conflict it would be folly to dogmatise. I have indicated frankly my own opinion, but I, for one, should like the subject to be more fully threshed out. It is a very obvious suggestion, moreover, that one may prove too much by such figures—that it is an outrage on common-sense to talk of there being no check to the rate of growth in the country when times are notoriously bad and everybody is talking of want of profit. What I should suggest finally, by way of a hypothesis reconciling all the facts, would be that probably there is some check to the rate of material growth in the last ten years, though not of the serious character implied by the first set of figures discussed; that this check may even be too small to be measured by general statistics, though it is sufficient to account for no small amount of *malaise;* and that the *malaise* itself is largely accounted for, as I have suggested on a former occasion, by the mere fall of prices, whatever the cause, as it involves a great redistribution of wealth and income, and makes very many people feel poorer, including many who are not really poorer, but only seem so, and many who are really richer if they only allowed properly for the increased purchasing power of their wealth. All these facts are quite consistent with the fact of a very slight real diminution in the rate of our material growth generally, and with that change in the direction of the national industry, significant of a general change beginning throughout the world which would seem to have occurred.

To some extent also it ought to be allowed that the tendency in the very latest years seems unsatisfactory, and that the developments of the next few years should be carefully watched. Up to now there is nothing really alarming in the statistics when they are analysed and compared. It may be the case, though I do not think it is the case, that causes are in operation to produce that great check and retrogression which have not as yet occurred, though many have talked as if they had occurred. The exact limits of the discussion should be carefully kept in mind.

Fortunately, however, there is no doubt what some of the conclusions on practical points should be. If it be the case that the hold of an old country like England on certain staple industries of the world is less firm than it was, and, as I believe, must be less and less firm from period to period, owing to the natural development of foreign countries and the room there is among ourselves for development in new directions, then we should make assurance doubly sure that the country is really developing in new directions. If our dependence must be on the new advantages that have been described, such as acquired manufacturing skill, concentration of population, and the like, then we must make sure of the skill and of the best conditions of existence for the concentrated population. If, in point of fact, shorter hours of labour and taking things easy have contributed to check our rate of progress slightly, there is all the more reason for improving the human agent in industry so as to make work in the shorter hours more efficient. Looking at the stir there now is about technical education and such matters, and the hereditary character of our population, I see no cause to doubt that the future will be even more prosperous than the past. The national life seems as fresh and vigorous as ever. The unrest and complaints of the last few years are not bad signs. But the new conditions must be fully recognised. The utmost energy, mobility, and resource must be applied in every direction if we are only to hold our own.

SUMMARY *of several* MALE LIFE TABLES.

By Dr. WILLIAM OGLE, M.A., M.D., F.R.C.P.

THE following compendious table has been drawn up in a form that will facilitate ready comparison between several life tables, based on the mortality of males, either in different ranks of life, or living under different conditions of time or place, or selected as being in a healthy condition at the date when they first came under observation. It has been thought that such a summary table may be of use to those who are interested in the question of class mortality—a subject that has been recently discussed before this Society.

The table gives in its successive columns the percentage of males of 10, 15, 20, &c., years of age, who, according to the data in the several life tables, survive 5, 10, 15, &c., years.

The life tables thus summarised are—

(1.) *The New English Life Table.*—This is a table based on the mortality of all males in England and Wales in the decennium 1871-80. It was constructed by myself, and published in the supplement to the Forty-fifth Annual Report of the Registrar-General.

(2.) *The Old English Life Table.*—This is the well known table constructed by Dr. Farr, on the basis of the mortality in England and Wales in the seventeen years 1838-54.

(3.) *The Healthy Males Table.*—This is the Healthy Males table of the Institute of Actuaries, and is based on the experience of the principal insurance societies in regard to insured, and therefore exceptionally healthy, lives.

(4.) *The Healthy Districts Table.*—This is a table constructed by Dr. Farr, on the basis of the male mortality in 1849-53 in sixty-three selected districts of England and Wales, in none of which had the mean annual death-rate during the decennium 1841-50 exceeded 17 per 1,000. It is printed in the Thirty-third Annual Report of the Registrar-General.

(5.) *The Upper Class Experience Table.*—This is a table constructed by Mr. C. Ansell, from data collected by him as to men in the upper and the professional classes. It is given in his "Statistics of Families in the Upper and Professional Classes."

(6.) *The Clerical Experience Table.*—This is a table based on data collected by the Rev. John Hodgson as to rather more than 5,000 clergymen who lived between 1760 and 1860. The table is published in Mr. Hodgson's "Observations on Duration of Life "among the Clergy of England and Wales."

It is not proposed to enter here on a detailed comparison of these tables; still a few remarks upon them may be permissible.

A. The Old and the New English Tables may be compared in order to see what change has occurred in the general male mortality in the interval between 1838-54 and 1871-80. The comparison shows that at the earlier date the chances were less favourable at the younger ages, and more favourable at the older ages than at the more recent date.

E.g., of 100 children just 10 years of age 89 would survive after twenty more years by the new table, but only 86 by the old table; while on the other hand after an interval of fifty years the survivors by the old table would be 52, but only 51 by the new table.

B. The Healthy Males Table may be compared either with the Old or the New English Table, but preferentially with the Old Table as nearer it in date. It shows, as might be anticipated in a table based on male lives that have been insured and were presumably healthy at the date of insurance, considerably larger survival figures throughout than does the English Life Table.

C. The Healthy Males Table may also be compared with the Healthy Districts Table. Such comparison tells in favour of the H.M. Table for the earlier ages and for short survival periods; while the reverse is the case, and the advantage is on the side of the Healthy Districts, at the more advanced ages and for long survival periods.

E.g., of 100 males aged 15 there are 26 survivors after an interval of sixty years by the H.M. Table, but 31 by the H.D. Table; whereas after shorter intervals up to 25 years, there are more survivors of the Healthy Males than in the Healthy Districts.

This is readily intelligible. The H.D. Table was based on the mortality in certain selected districts which were considered to have been healthy because the general death-rate had been exceptionally low, districts therefore in which most probably the death-rate had been exceptionally low at every age-period; but the H.M. Table was based on males exceptionally healthy only at the start, that is at the date of insurance. Thus the difference at starting between the two tables is very small, and such difference as exists is in favour of the healthy males; but in course of time the advantage derived by them from their original selection becomes smaller and smaller, and at last is entirely wiped out and surpassed by the effects of what may almost be called the continuous selection of healthy lives in the Healthy District Table.

D. The Upper Class Experience Table may be compared with the Old English Life Table to show the effects of comparatively easy circumstances. Doubtlessly were the figures given for children under 10, the comparison would be enormously in favour of the Upper Class Table; but taking children of 10 years of age, with whom the tables begin, there is not much advantage on the side of the upper class for short periods of survival; the survivors after five years are the same in number in each table; then 95, 91, 87, 83 are the survivors per cent. after 10, 15, 20, 25 years by the Upper Class Table, while the figures are one less at each interval by the English Table. So also at 20 and 25 years of age, the chances of survival for the short periods of 5 or 10 years are almost as good for the general population as for the upper classes. But the difference between the two becomes very great when either more advanced ages are taken as the starting point, or longer periods of survival considered. Thus of 100 children just 10 years old, 32 survive after sixty years' interval by the English Table, but 43 by the Upper Class Table; and of 100 men 55 years of age, 87 are alive after five years' interval by the English Table, but 91 by the Upper Class Table. It is in the latter part of life that the advantages of easy circumstances are most conspicuous. In youth or early manhood, so far as immediate chances of living go, there is much more equality.

E. The Clerical Experience Table may be most appropriately compared with the Upper Class Table, which includes men engaged in all the higher professions. The advantage is largely on the side of the clergy in all the earlier periods of life, as might be anticipated, seeing that no very unhealthy men are admitted into the clerical ranks; but strangely the advantage appears to be on the other side for the later ages or for long survivals. Thus of clergymen aged 35 a larger percentage survives than is the case with the upper classes generally at each quinquennium until 60 years of age are reached; then in the next quinquennium the number of survivors in the two groups is the same, namely, 62; and after this the percentage of survivors is lower for the clergy than for the upper classes generally. It is not easy to see any satisfactory explanation of this, for the wear and tear of a clergyman's life is probably much less on an average than the wear and tear of other professional lives, and clerical habits are surely favourable to vitality in a more than average degree, so that it might fairly be expected that the advantage enjoyed by clergymen in the earlier ages would increase rather than diminish with the advance of years. It is impossible therefore to avoid the suspicion that these tables, or one or other of them, have been based on too small a number of observations.

ge	Life Table.	Percentage of Males that Survive												
		5 years.	10 years.	15 years.	20 years.	25 years.	30 years.	35 years.	40 years.	45 years.	50 years.	55 years.	60 years.	65 years.
10	New English	98	96	93	89	84	79	74	67	60	51	42	31	20
	Old ,,	98	94	90	86	82	77	72	66	59	52	43	32	21
	Healthy Males	98	96	93	90	86	82	78	73	67	59	49	38	26
	,, Districts	98	96	92	89	85	81	77	73	68	62	53	43	30
	Upper Class Experience	98	95	91	87	83	79	75	70	65	59	51	43	?
	Clerical Experience	—	—	—	—	—	—	—	—	—	—	—	—	—
15	New English	98	94	90	86	81	75	68	61	52	43	32	21	—
	Old ,,	97	93	88	84	79	74	68	61	53	44	33	22	—
	Healthy Males	98	95	91	88	84	79	74	68	60	50	39	26	—
	,, Districts	97	94	90	86	83	79	74	69	63	54	43	31	—
	Upper Class Experience	97	93	88	84	80	76	71	66	60	52	43	?	—
	Clerical Experience	—	—	—	—	—	—	—	—	—	—	—	—	—
20	New English	97	93	88	83	77	70	62	54	44	33	21	—	—
	Old ,,	96	91	87	82	76	70	63	55	45	34	23	—	—
	Healthy Males	97	93	90	86	81	76	69	61	51	40	27	—	—
	,, Districts	96	93	89	85	81	76	71	65	56	45	32	—	—
	Upper Class Experience	96	91	87	83	78	73	68	62	54	45	?	—	—
	Clerical Experience	—	—	—	—	—	—	—	—	—	—	—	—	—
25	New English	96	91	86	79	73	65	56	45	34	22	—	—	—
	Old ,,	95	90	85	79	73	66	57	47	36	24	—	—	—
	Healthy Males	97	93	88	84	78	71	63	53	41	28	—	—	—
	,, Districts	96	92	88	84	79	74	67	58	46	33	—	—	—
	Upper Class Experience	95	91	86	82	76	71	65	56	47	?	—	—	—
	Clerical Experience	97	94	91	87	82	76	68	58	46	33	—	—	—
30	New English	95	89	83	76	67	58	47	35	23	—	—	—	—
	Old ,,	95	89	83	77	69	60	49	38	25	—	—	—	—
	Healthy Males	96	92	87	81	74	66	55	42	29	—	—	—	—
	,, Districts	96	92	87	82	77	70	60	48	34	—	—	—	—
	Upper Class Experience	95	91	86	80	75	70	59	49	?	—	—	—	—
	Clerical Experience	97	94	90	85	78	70	60	47	34	—	—	—	—
35	New English	94	87	80	71	61	50	37	24	—	—	—	—	—
	Old ,,	94	88	81	73	63	52	40	26	—	—	—	—	—
	Healthy Males	95	90	84	77	68	57	44	30	—	—	—	—	—
	,, Districts	96	91	86	80	73	63	50	36	—	—	—	—	—
	Upper Class Experience	95	90	84	79	71	62	51	?	—	—	—	—	—
	Clerical Experience	96	92	87	81	72	62	49	35	—	—	—	—	—
40	New English	93	85	75	65	53	39	26	—	—	—	—	—	—
	Old ,,	93	86	77	67	55	42	28	—	—	—	—	—	—
	Healthy Males	95	88	81	72	60	46	31	—	—	—	—	—	—
	,, Districts	95	90	84	76	66	53	37	—	—	—	—	—	—
	Upper Class Experience	95	88	83	75	65	54	?	—	—	—	—	—	—
	Clerical Experience	96	90	83	75	64	51	36	—	—	—	—	—	—
5	New English	91	81	70	57	43	28	—	—	—	—	—	—	—
	Old ,,	92	83	72	59	45	30	—	—	—	—	—	—	—
	Healthy Males	93	85	76	63	49	33	—	—	—	—	—	—	—
	,, Districts	94	88	80	69	55	39	—	—	—	—	—	—	—
	Upper Class Experience	93	87	79	69	57	?	—	—	—	—	—	—	—
	Clerical Experience	94	87	78	67	53	38	—	—	—	—	—	—	—

Age.	Life Table.	Percentage of Males that Survive												
		5 years.	10 years.	15 years.	20 years.	25 years.	30 years.	35 years.	40 years.	45 years.	50 years.	55 years.	60 years.	65 years.
50	New English	89	77	62	47	30	—	—	—	—	—	—	—	—
	Old ,,	90	78	65	49	32	—	—	—	—	—	—	—	—
	Healthy Males	91	81	68	52	35	—	—	—	—	—	—	—	—
	,, Districts	93	85	73	59	42	—	—	—	—	—	—	—	—
	Upper Class Experience	94	85	74	61	?	—	—	—	—	—	—	—	—
	Clerical Experience	92	83	71	56	40	—	—	—	—	—	—	—	—
55	New English	86	70	52	34	—	—	—	—	—	—	—	—	—
	Old ,,	87	72	55	36	—	—	—	—	—	—	—	—	—
	Healthy Males	88	74	57	39	—	—	—	—	—	—	—	—	—
	,, Districts	91	79	63	45	—	—	—	—	—	—	—	—	—
	Upper Class Experience	91	79	65	?	—	—	—	—	—	—	—	—	—
	Clerical Experience	90	77	61	43	—	—	—	—	—	—	—	—	—
60	New English	81	61	40	—	—	—	—	—	—	—	—	—	—
	Old ,,	83	63	42	—	—	—	—	—	—	—	—	—	—
	Healthy Males	84	65	44	—	—	—	—	—	—	—	—	—	—
	,, Districts	86	69	49	—	—	—	—	—	—	—	—	—	—
	Upper Class Experience	87	72	?	—	—	—	—	—	—	—	—	—	—
	Clerical Experience	85	68	48	—	—	—	—	—	—	—	—	—	—
65	New English	75	49	—	—	—	—	—	—	—	—	—	—	—
	Old ,,	76	50	—	—	—	—	—	—	—	—	—	—	—
	Healthy Males	77	52	—	—	—	—	—	—	—	—	—	—	—
	,, Districts	80	57	—	—	—	—	—	—	—	—	—	—	—
	Upper Class Experience	83	?	—	—	—	—	—	—	—	—	—	—	—
	Clerical Experience	79	56	—	—	—	—	—	—	—	—	—	—	—
70	New English	65	—	—	—	—	—	—	—	—	—	—	—	—
	Old ,,	66	—	—	—	—	—	—	—	—	—	—	—	—
	Healthy Males	67	—	—	—	—	—	—	—	—	—	—	—	—
	,, Districts	71	—	—	—	—	—	—	—	—	—	—	—	—
	Upper Class Experience	?	—	—	—	—	—	—	—	—	—	—	—	—
	Clerical Experience	71	—	—	—	—	—	—	—	—	—	—	—	—

Our Statistics *of* Foreign Trade, *and what* They Tell Us.

By A. E. Bateman, Esq.

[An Abridgment of a Paper Read before Section F of the British Association, at Manchester, in September, 1887.]

After referring to the fact that 1854 was the first year of correct import values, the previous statistics of imports being based on official valuations dating from the end of the seventeenth century, the writer stated that the subject of our trade statistics has been treated at different times by several eminent members of the British Association, notably by the President of the Section, Mr. Giffen, in his paper on "Import and Export Statistics," in 1882, and by Mr. Stephen Bourne and others; and that the question of making more comparable the trade statistics of the various countries was among those which engaged the attention of the International Statistical Institute at Rome last April, an international committee having been appointed to report on the chief points to the next meeting of the Congress.

He then proceeded: "To begin, then, the principal trade statis- " tics of this country are three in number, viz., (1) the monthly " accounts of trade and navigation, or Board of Trade Accounts as " they are usually called,[1] which are published on the 7th of the " month following that to which they relate; (2) the annual state- " ment of trade, which gives the fullest details available as to the " trade in each article with each country, and also includes abstract " tables for five years; (3) the statistical abstract for the United " Kingdom, which gives an abstract of fifteen years' trade by " articles and countries among the other statistics of the United " Kingdom.

" A special feature in these abstract accounts, which is not " found in the other two publications, is a comparative price list of " articles of import and export, derived from their actual quantities " and values.

" Of these publications, far the best known to the public is the " monthly account, and it is no uncommon occurrence for inquiries " to be received in the Board of Trade from commercial people for

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[1] As is stated on the face of the accounts, the import and export statistics are compiled at the custom house from documents collected by that department, but they are subject to control by the Board of Trade as to extent of information and form and construction of the returns.

" information which they would have found at once in the detailed " annual statement, if they only knew of its existence. One reason " for the greater attention paid to the monthly accounts than to the " annual statement of trade is that the latter is not usually issued " till some time past the middle of the year, when interest in *last* " year's trade is beginning to wane; and the earlier publication of " the annual statement is very desirable, if it could be effected " without impairing its correctness. At present, besides the time " occupied in compiling the definite annual accounts, the monthly " accounts having been more or less provisional, some delay is " owing to certain stock and bonded warehouse accounts of dutiable " articles which cannot be rendered till some months after the " close of the year.

" Besides the three principal publications to which I have " referred, there are other returns of trade in particular articles " for short periods, such as the daily bill of entry lists of ships' " cargoes, and the weekly and monthly accounts of trade in corn " and other agricultural produce, cotton, and the precious metals.

" There is another important distinction in the compilation of the " monthly and annual accounts of trade, viz., that in the former the " articles of import and export have for several years been divided " into categories according to a plan recommended by a statistical " committee in 1882, while the latter still give the articles mainly " in alphabetical order. This is one of the points in which there is " most diversity, not only in this country, but abroad; for no two " people can usually be found to agree as to the best system of " classification, and whether particular articles should be counted " as manufactured articles or raw materials. An elaborate return " of imports and exports from 1854 to 1880 was ordered by the " House of Commons, on the motion of Mr. Ritchie, in 1882, which " divided articles into the following five headings:—

" (1). Manufactured goods.
" (2). Articles partly manufactured.
" (3). Raw materials.
" (4). Articles of food, &c.
" (5). Unclassed articles.

" In a note, however, affixed to that return attention is called by " the Board of Trade to the unsatisfactory nature of this classifica- " tion, caused chiefly by the manufactured article of one trade being " the raw material of another, as, to take only one instance, cotton " cloth, which is classed as a manufactured article, but which is " certainly the raw material in many industries around Manchester. " The classification afterwards adopted for the monthly accounts

" was more extended, as is shown at the end of the appendix,[2] " having with sub-heads eleven categories of imports and nine of " exports. The classifications used in the trade accounts of the " principal foreign countries are shown in the same table. It may " be noted as regards most foreign countries that the classification " generally follows the customs tariff.

" The next point in the compilation of our trade accounts is " valuation, and it is a most important one. As stated above, until " 1854 the values of imports were computed at the prices of a century and a half before, and were therefore practically worthless, " except as records of the volume of trade—a consideration often " lost sight of now; from 1854 to 1870 the values of imports were " officially computed according to the best information available, " and since 1870 the value of imports, as of exports from a remote " period, have been declared by the importers and exporters. This " system differs from that in use in most foreign countries, where " the values are computed officially by commissions sitting annually " or less often, and I supported the English system before a committee of the International Statistical Institute, on the ground " that by it changes in price which now often occur very abruptly " are at once shown in the accounts, while by the continental " system the prices of a year or even two years ago still govern the " valuations. Several of the committee, however, attached little " importance to getting trade statistics based on present prices when " this entailed relying on private declarations of values which could " not be carefully checked before publication. There is no doubt " that our present system is mainly dependent on the care and " accuracy of the consignees and exporting agents, who are themselves often insufficiently instructed by their principals, and, in " the case of export statistics especially, there is much that might " be done by exporting manufacturers in the Manchester district " that would add to the accuracy of our trade statistics not only in " regard to values but also as to registration of true origin of " imports and destination of exports. This part of our trade statistics is, it must be confessed, still very defective, especially as " regards our trade with Continental Europe. After 1870 an effort " was made to register the ultimate destination of exports, but in " the case of trade through continental countries the attempt has " practically failed and been abandoned, although trade with the " East, through the Suez Canal, is still properly registered, as with " India, China, &c. This defect is common to the statistics of most " foreign countries, in spite of attempts made in France, Belgium, " and Portugal to show real origin and destination of goods, but it

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[2] The appendix was published in the Bulletin of the International Statistical Institute for 1887, vol. ii, part I.

" is none the less a grave defect that limits the usefulness of trade " statistics very considerably; and if merchants and manufacturers " could see their way to supplying their agents with better information on this point, another attempt might well be made to " register our continental trade more accurately.

" There is one other point on which I would ask your advice and " help, and that is the registration of weights of textiles imported " and exported. Almost every continental country has now this " information, and can tell how much of the raw material imported " and produced has been sent out in a manufactured form, but it is " here still a matter of guess-work. The weight of woollen exports " was registered along with the yards some years ago, but owing to " opposition mainly from London warehousemen even this distinction was given up three or four years since. It was alleged in " opposition to the registration of weights that it would entail " much delay at the ports, as the exporting agents would not " usually know the weights of the different articles included in a " package; but on the other hand it appeared that as duties in " almost every European country had to be paid by the weight of " the textiles, these particulars would generally be well known to " the exporter."

The writer then gave a short review of the various articles of import and export, drawing attention to recent changes, such as the tendency to import dead meat instead of live meat, the displacement of Russia as our second most important granary by India, the growing consumption of butterine instead of butter and molasses, the increase in refined sugar imported, and the great fall in the price of sugar.

He then proceeded: " As regards prices generally, the tables at " pp. 117—121 in the statistical abstract to which I have referred " are of considerable value; but allowance must of course always " be made for changes in price being due to a higher or lower " quality of article than in past years. This is especially the case " in the table of average prices of British exports, such as textiles, " in which the varieties of articles under one heading are very " numerous.

" The next two categories, metals and oils, do not call for much " remark, except in regard to the great fall in price in the last " fifteen years, shown in the price table of the statistical abstract; " and we next come to raw materials for textile manufactures, " which form, next to food, the chief category of import, having " amounted to 72 millions sterling last year, of which raw cotton " was 37¾ millions, and wool 22¼ millions. The re-exports of these " articles, which are, especially in the case of wool, of considerable " importance, are shown in the monthly accounts in the table of

" foreign and colonial re-exports, and in the statistical abstract " there is also a table which shows imports, exports, and excess of " imports of both these materials. Accounts of cotton forwarded " from and to inland towns are also collected weekly and monthly " under the Cotton Returns Act of 1868, which was passed at the " desire of the trade for fuller information as to the consumption " of cotton than was given in the foreign trade accounts, and in " order to check the unofficial returns of the Liverpool cotton " brokers. It has been suggested that such statistics of goods " coming to and leaving the great manufacturing centres of goods " should be extended by requiring returns from the railway companies and other carriers; and I should be glad to hear the " opinions of competent authorities on this and on another suggestion, that the manufacturer should himself make returns of " receipts of raw material, produce, and stock, as is done in " several countries along with the census of population, and in " others even annually."

After reviewing also the chief articles of export, the writer notices that the classifications of import and export in the monthly accounts are different, the object being to present the most salient features of each trade and give some clue to the unsatisfactory item of "other articles," which cannot be avoided, no more than can the equally unsatisfactory term "other countries," without adding enormously to the bulk of the accounts and delaying their publication.

He then proceeds: "Table III contains the exports of foreign " and colonial merchandise, which, owing to their smaller number, " are not classified in the same way as either imports or British " exports, but are alphabetical. Several cautions here are necessary: (1) that besides these re-exports, which have been actually " entered in import and in export, there are goods transhipped " amounting in value to almost 11 millions;[3] and (2) there is " beside a large proportion of foreign value in the so-called British " exports, which are declared as British if an appreciable amount " of work ('main d'œuvre') has been bestowed on them in this " country. To eliminate foreign from British value would be a " most troublesome task, and almost an impossibility, but it is well " to bear in mind this difficulty as to so-called British produce and " manufactures.

" After the account of foreign exports comes the bonded warehouse account of dutiable articles. This account is subject to " material corrections at the end of the year, as it is necessarily " based partly on estimates.

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[3] The quantities of these articles transhipped from and to each country are shown in Table No. 28 of the annual statement.

" With regard to the bullion and specie accounts which follow, " I would mention a proposal brought before the International " Statistical Congress at Rome by Signor Ferranis, viz., that the " import and export accounts of bullion and specie should be " checked and supplemented by the returns of bankers, bullion " brokers, &c., of the movement of the precious metals. It was " stated that in Italy these returns had been made much more " correct of late years by requiring other particulars from the " banks, as well as from the railways and other carrying agencies, " but I do not know how the bankers here would regard the " proposal." The writer adds: " A comparison of the last fifteen " years shows the increasing tendency of trade to follow the flag, " especially as regards exports of British produce, for whereas " such exports to British possessions were fifteen years ago less " than one-fourth of the exports to all countries, they are now " more than one-third, namely, in the first six months of the " present year 36 millions out of 104 millions sterling."

MISCELLANEA.

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I.—*On the Progress of Commerce and Industry during the last Fifty Years. An Introductory Lecture, delivered at King's College, by* Professor Leone Levi, LL.D., *on* 13*th October*, 1887.

It is well to know that commerce and industry are now admitted as demanding and deserving the solicitude of States. Time was when sovereigns were only concerned with wars and alliances, and with despotic pretensions or matrimonial schemes, and when the material interests of the people were held of no account, or deemed as beneath their notice. States have now, by experience, learnt that a nation rich and prosperous is more likely to be heard in the council of nations, than one poor and decaying; that the prosperity of the people is the first condition for the stability of the public finances; and that national influence is better advanced by the diffusion of commerce, the power of capital, and the presence of native merchants in every nook and corner of the habitable globe, than by the presence of armies and navies, or by the action of ambassadors and consuls, however skilful they may be. But though the prosperity of trade must ever be a matter of supreme regard, the government of a State must remember that its functions are primarily, if not exclusively, the maintenance of order, and the protection of the country from aggression from within and from without. And although it is the duty of the Government, as far as its power extends, to shield its subjects or citizens from fraud and exactions, wherever they may be domiciled, it is not incumbent on the same to procure for them trade and privileges. The ambassador, who is the eye and the ear of the State; the consul, specially deputed to watch over the commercial interests of the people he represents, must be alert in sending such information, or take such steps as may delay or prevent the granting by the States to whom they are accredited, of special privileges to other countries collectively, or to merchants of other countries individually; but what would be objected to if given to others, must not be sought for ourselves. The ambassador is a political, not a commercial representative. The consul must not allow personal partialities to sway his public duties. In all matters, indeed, having reference to the material or economic interests of the nation, the Government must needs be earnest, but cautious, for there is as much danger of doing too much, as of doing too little; there is danger of misconceiving the interests of individuals for the interests of the nation; and still more danger from the fact that the action of the State is often irreparable, and if mistaken, may commit the nation to a policy bearing the most disastrous consequences. There is much reason indeed for such caution in all matter of commercial legislation, especially in the present state of the customs laws of different countries, the operation of which, in many cases, is very irritating, and well nigh insupportable.

Free traders are reminded that Mr. Cobden's predictions, that if once England adopted free trade, all the world would follow in her steps, have been singularly unfulfilled. Yes, indeed, protection is rampant in many States. But if the light that is in them be darkness, how great is that darkness. A glance at the negotiations now going on for new treaties of commerce, on the basis of more and more protection, shows that not a few States are quite at their wit's end as to what is best to be done. Reasons of State, or want of revenue; the need of quieting or satisfying the cravings of manufacturers and capitalists always eager for monopoly, and a natural anxiety to promote produce and manufactures, make States ready and willing to increase their tariffs. And they fret if they are hampered by treaties or threatened by retaliation. Under what is called the "most-favoured nation" clauses, in most treaties of commerce, each nation provides that the contracting States will give to one another the full benefit of whatever concession either may make to any other country. Most necessary clauses they are, which justly prevent favouritism. But these clauses, advantageous in many respects, act as a barrier to any special legislation of a restrictive character against any State, whatever the provocation. And so those who resent the hindrance, are ready to advocate the abandonment of the most-favoured nation clauses, and the holding in reserve of a customs tariff bristling with protective items, dependent on internal legislation, and not on the agreement or adhesion of other States: a tariff which might act as a salutary menace, and prove the means of artificially exacting relaxions of duties from other countries. The evil of such a course, however, is that as soon as one autonomous tariff comes into operation, the example is immediately followed by other States, each imposing higher protective duties, till at last there is an end of all stability of duties, and an end too of all calculation of the probable success of business. At one time questions like these were the constant causes of war. We are not going so far now, but the contention is serious, and who can tell the result. The relations of France and Italy on this very subject at the present time are precarious in the extreme, and I earnestly hope that neither power will push its demands to excess.

But apply these remarks to a question persistently brought forward in this country, that of the sugar bounties. Admitting all that has been said of their injurious working to the British sugar manufacture, though the nation as such can have no objection to getting sugar cheaper than its actual cost would justify, could England meet such bounties by a preferential legislation in favour of any country not guilty of such a course, whilst heavily taxing the products of the country guilty of the same? Treaty obligations happily compel us to treat all nations alike, and if so, it is perfect folly on the part of any section of the people—nominally, indeed, the workmen, but practically West India sugar importers and British refiners—to ask the Government to do what the nation as a whole would not like it to do, or what, if it were desirable to be done, we are absolutely prevented from doing by a clause in our treaties which is as useful and beneficial to ourselves as it is to any other countries. What we want is some general understanding on matters of customs tariffs. If universal free trade is impossible, because customs duties are required for revenue purposes, could not an agreement be arrived at fixing the maximum rates on the different articles in all countries alike? If customs duties are wanted for securing a reasonable protection of native industry, what percentage ought to be allowed for such a purpose, taking into account the natural protection of native against foreign produce in the cost of transport, insurance, commission, &c.? The United States, altogether wrong as they are in their policy as regards foreign commerce, enjoy at least the benefit of free trade within themselves over their own vast area. In Europe, unfortunately, every petty State shuts itself up from all the rest by the most complex and absurd system of tariffs. I do not approve of making financial matters the subject of conventions, but surely a better understanding might be arrived at on the broad question of customs tariffs throughout Europe.

Notwithstanding all difficulties, natural and artificial, the commerce of the world is, and must be, constantly increasing, the necessary consequence of the increase of population in the principal States of Europe, and the immense masses of people brought within the range of commercial intercourse within the last fifty years; of the many articles of produce and manufacture which have, by science and ingenuity, become valuable articles of commerce; of the speed attained in the transport of goods and passengers by sea and land, and the celerity of communication by telegraph; of the augmentation of capital, with increasing security and facilities for its investment; and last, though not least, in consequence of the increase of the amount of gold, and the extension of banking and credit. Within the last fifty years not only has the population of Europe increased upwards of 100 millions,[1] but intercourse has been opened or enlarged with India, China, and Japan, numbering together some 500 millions. What does this mean but an immense increase of producers and consumers, the productive power being increased in many cases a hundred fold by the use of implements, tools, and machines, and the application of new natural forces, such as steam and electricity; and the consuming power being also augmented by the diffusion of comforts among all classes. The Board of Trade tables relating to the trade of the United Kingdom show us how every new invention leads to increasing traffic. The exports of manufacture of soda, of chemical products, of drugs and medicinal preparations, and of chemical manures, all comparatively new industries, amounted in 1886 to upwards of 5 million £. The manufacture of caoutchouc or india rubber was but little known fifty years ago, yet in 1886 the exports of the same amounted to nigh 1 million £. I have stated that the speed of transport facilitates trade. Whence is it that we now regularly receive large quantities of wheat from India, but because the railways recently constructed bring the wheat cheaply from the interior to the shipping ports, and steamers carry it from India to British ports? The railways are the creation mainly of the last forty years, and there are now in the world upwards of 300,000 miles of rails, carrying to and from great masses of merchandise and people. And who can tell the number of words which are flashed as by lightning through the 2 millions of miles in length of telegraphic wires? No longer months and months are required to complete a commercial transaction with India or Australia. A bill at usance needs not be at six months' date. By cable an order is sent, and by cable a banking transfer completes the operation. But is there no limit to the increase of commerce? It is surely limited, on the one hand by the power to produce, and on the other by the power to consume; and there is reason to think that whereas in the early part of the last fifty years the power to produce was less than the power to consume, in recent years production has proceeded at a far greater speed than consumption. Taking quantities especially into account, it is not too much to say that whereas population is ordinarily increasing at the rate of 1 per cent. per annum, production at times has been increasing at the rate of 10 or 20 per cent.[2] Political economy commends the increase of production, but production of what? Not of simple materials, measured by length or weight, but of utilities or of real wealth. And if we will have commerce to be profitable, or to have the effect of increasing utilities, we must observe the conditions of limitation imposed on the same by time, place, and circumstances.

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[1] The population of Europe was given by Balbi in 1833 at 227 millions, in 1887 the *Almanach de Gotha* gave the population of European States at 336 millions.

Of the entire amount of trade now carried on in the various countries of the world we know but little. We can only guess at the amount of internal trade in this country, where statistics are so much in use. How much less do we know as respects other countries? Even of the external trade of the principal countries, the information available is very inexact. Taking the facts as they are given in the Statistical Abstract of the principal and other foreign countries, published by the Board of Trade, the total or aggregate amount of general commerce, including imports and exports, in 1885, amounted to about 800 million £ sterling; the greater part, or over 80 per cent. of the whole, being in the hands of eight countries, viz., the United Kingdom, Germany, France, the United States, Belgium, Holland, Austria, and Italy. But among these, some are mainly producers of articles of food and raw materials, and some of manufactures and other articles of general use. The United States of America are by far the largest producers of grain, cotton, and other articles belonging to the former category. The United Kingdom is the largest producer of merchandise included as manufacturing industry. As regards the former, or among producers of articles of food and raw materials, there is really no competition; but as regards the latter, or of manufactured goods, the question is, what nation can produce for export the largest quantity of merchandise, of the best quality, and at the most advantageous conditions? This is indeed the practical question of the day, and we are all anxious to know, whether in the same industries, or in the export of those articles for which the United Kingdom used to enjoy complete supremacy, other countries are advancing faster than we are; whether this country's manufactures are suffering at home from the competition of foreign manufactures, and whether the foreign markets for British produce and manufacture are less open to us now in consequence of the advance made by their native producers and manufacturers. That other countries advance *pari passu* with us we must not complain. The question is, do we lose by what they gain? We complain that our exports are not increasing so fast as they used to do. In 1846 the exports of British produce and manufacture amounted to 58 million £, and in 1866 they amounted to 189 million £, showing an increase in the twenty years of 229 per cent. Between 1866 and 1886 the exports did not increase so fast, the amount having risen only from 189 million £ to 212 million £, or only 12 per cent. Whence this diminution in the rate of increase? Was it owing to our being now handicapped by other countries? No, it cannot be, because the experience of France has been quite similar. Whilst between 1846 and 1866 French exports rose from 34 million £ to 127 million £, or at the rate of 273 per cent., between 1866 and 1886 they actually fell to 124 million £; and in both countries the exports in quantities were considerably larger. It is only when we come into details and deal with special industries, that we can ascertain how competition really operates. Thus, take the exports of cotton manufacture, the staple industry of England. Of cotton manufactures, Germany, Holland, Belgium, France, and Austria in 1875 exported in the aggregate to the value of 7,600,000*l.*, and in 1885 of 9,900,000*l.*, showing an increase of 30 per cent.; whilst of British cotton manufacture, exclusive of yarn, the exports amounted to 59 million £ in 1875, and to 57 million £ in 1883, showing a diminution of 3 per cent. But with all this, the British cotton manufacture is at an enormous distance from that of any other country.

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[2] The production of coal in the chief coal-producing countries of the world was 256 million tons in 1873, and 333 million tons in 1882, showing an increase of 30 per cent. in ten years. The production of pig iron in Great Britain and six next largest iron-producing nations, was in 1873 14,689,000 tons, and in 1882 21,063,000, showing an increase of 44 per cent. Unlike the increase of population, the increase of production, a decennial increase of 20 to 30 per cent., does not represent an annual increase of 2 to 3 per cent., but an increase by bounds and rebounds often remaining permanent, and sometimes to be followed by reaction.

Of woollen manufacture France, Belgium, and Holland exported in 1875 about 16 million £, and in 1885 14 million £, showing a diminution of 12 per cent.; whilst the exports of British woollen manufacture decreased from 33 to 20 million £, showing a diminution of 39 per cent. On the other hand, whilst the British exports of earthenware and glass showed no diminution between 1875 and 1885, the export of the same from France diminished from 2,000,000*l*. in 1875, to 1,400,000*l*. in 1885. There are other branches also where foreign countries have made no advance whatever, whilst the British exports are yearly becoming larger. Here and there the exports of foreign countries are proportionally larger than the British, but here and there also it is quite the reverse, and substantially the relative position remains unaltered. In one respect there is certainly a difference. The leading European and American States are not so dependent now on England as they once were. Holland in 1865 received 30 per cent. of all her imports from the United Kingdom. In 1885 she received only 25 per cent. from us. Belgium in 1865 received 19 per cent. of her imports from this country; in 1885 only 12 per cent. France in 1865 received 29 per cent. of her imports from the United Kingdom, in 1885 she received of the same only 13 per cent. Italy, which in 1865 received 19 per cent. of her imports from this country, in 1885 received from us 21 per cent.; but the United States, which in 1865 received from this country as much as 62 per cent. of all her imports, in 1885 received from the United Kingdom only 24 per cent. of her imports. It is not that the imports of these countries from the United Kingdom are less now than they were, but that their dealings with other countries are larger. As to the effects of free trade in this country, it is not true that any branch of British industry has been ousted by foreign competition. Since free trade has opened the door to all producers, no industry has suffered, nay, all have expanded enormously. A few articles of foreign manufacture do legitimately find a market here, but certainly none of great importance, except indeed sugar, and that under exceptional circumstances of hardship. In any case, it is well to realise the fact that England has now many competitors in all branches of her industry, that the productive power of other countries has greatly increased, and that she must buckle on her armour and that firmer than ever, if she is to succeed in maintaining her position.

There was a time when England, with an open sea and a powerful marine, with enormous mineral produce, and powerful machinery, could really bid defiance to any other country. It is not so now. The extension of railways has greatly modified several important elements of international competition. By their aid the entire resources of each country can now be easily carried to the shipping ports; by their aid coal can be obtained in countries formerly deprived of such mineral; and by competition between steamers and railways, the rates of transport have been so reduced, that they add only very infinitesimally to the cost of moving produce or merchandise. The increase in the production of coal of late years has been marvellous. In 1870 Germany produced 26 million tons of coal, in 1885 she produced 58 million tons; in 1870 France produced 13 million tons, in 1884 20 millions; in 1870 the United States produced 33 million tons, in 1884 96 million tons. Everywhere, moreover, we see the best engines, the most powerful machinery, and the most wonderful implements for saving labour in agriculture, in industry, and in the most trivial occupation. The wages of labour are, if anything, lower abroad than in this country; and what is more important, capital is more diffused, and is more readily invested in commerce and industry. Fifty years ago, with the political condition of France, Germany, Italy, and nearly every other State in Europe, in constant jeopardy from revolution and war, capital was hidden, and credit and confidence were unknown. Not so now, and with increasing political confidence, there is more enterprise and more spirit in commercial adventures. We lament, with good reason, the high tariffs, which practically exclude British goods from many markets. Doubtless such protective tariffs do give an artificial stimulus to production, and so far they disconcert the operation of our producers and manufacturers. Remember, however, that any ephemeral support given by protection is deceptive, and foreign manufacturers will find that it were better for them in the end if they relied upon the more substantial sources of strength in economy and goodness of materials. There is one great comfort in the new conditions now before us, that the world is yearly expanding, and that really there is room for us all. Certainly the experience of the last fifty years does not warrant the conclusion that the part played by England as a manufacturing country is at all played out. Compare the trade of 1836 with that of 1886. In 1836 the exports of British produce to European States amounted to about 18 million £ on a total exportation of 53 million £. In 1886 such exports amounted to about 75 million £ on a total of 212 million £, or in both cases in the proportion of about 35 per cent. To India and China, and other parts in Asia, in 1836, the exports amounted to 5,500,000*l.*; in 1886 they reached 41 million £. Of late years the resources of India have been developed at a rapid pace, and western ideas have so far penetrated the East, that we may confidently anticipate a great future in our trade with Asia. Who can tell what field may yet be afforded to the British traders in China, when railways and telegraphs shall traverse the whole country? Japan has suddenly quickened into a new life. It is not thirty years since she first opened her ports to European and American ships and traders, and already she has gained the respect of all nations for her enlightened efforts in establishing a sound system of commerce and finance. Africa, once the dark continent, has at last been opened to the bright light of freedom. The Cape of Good Hope, with Natal, is a most promising colony. In 1836 our exports thither amounted to 500,000*l.*; in 1886 to 3,200,000*l.* The Department of the Congo will some day bear rich fruit. America alone is disappointing. In 1836 our exports to that continent amounted to about 25 million £ on a total of 53 million £, or in the proportion of 47 per cent. In 1886 our exports were 48 million £ on a total of 212 million £, or in the proportion of 22 per cent. The wonder of wonders, however, is Australia, where in 1836 there were exported only 800,000*l.* worth of merchandise, and in 1886 22,400,000*l.*

What we need is to be well equipped for the keener contest. We must indeed knock again and again at the gate of Nature, institute new searches into her mysteries, and see what she has yet in store for us. The Department of Science and Art promotes scientific instruction. Much is being done by the City and Guilds of London Institute to diffuse scientific knowledge among our artisans; yet invention seems to advance very sluggishly. Electricity is tardy in showing its power. Mechanics are not evolving any fresh principle. We seem to long for the day when some new discovery may give a new impetus to commerce and industry. For the progress of manufactures there is need of more fertility of design and greater adaptability to the wants of the millions for whom we must cater. I do not believe in the servile copying of eastern designs. The tendency is towards the blending of the absolute eastern with the absolute western types. As important, however, as the progress of our manufacturing industry, is an improvement in the education of our merchants. If the trade with Asia and Africa is no longer to be confined to the shipping ports, but to extend to the interior, it is absolutely necessary that geographical education be not limited to the pointing out of certain places on a map, but include a description of the physical aspect of the countries, and of the industrial facts necessary to be known in our dealing with them. A more extended knowledge of the living languages, especially French, German, and Spanish or Italian, and more attention to the languages of the East, is also most necessary. And so it is as regards the first principles of economic science, with sound notions as regards money and wealth, wages and strikes, thrift and social economy; besides an adequate knowledge of commercial law, embracing as it does partnership and agency, sale and contracts, bills of exchange and other mercantile instruments, shipping, and insurance.

I am disposed, moreover, to give to travel a high place in the technical education both of the manufacturer and the merchant, as a means of awakening mental and moral faculties, and also for the purpose of coming into real touch or direct contact with the consumers of different countries. I venture to say that a new class of commercial travellers must henceforth be obtained—men of power and intelligence; and I cannot conceive a better mode of achieving this than by the City and Guilds of London Institute awarding scholarships of sufficient amount, tenable for a couple of years, to their best students, enabling them to acquire practical knowledge of the different countries and people with whom we are trading. But what cannot be achieved by means of travel, we may to some extent accomplish by means of exhibitions at our own door. The Imperial Institute, now in course of erection, will, it is understood, have a collection of all that is commercially valuable and scientifically interesting of the natural products of the great Indian Empire and of the colonies. I hesitate speaking seriously of this institute, for I am not satisfied that its true purpose has as yet been definitely seized, and I would fain believe that it contemplates something nobler and more practically useful than to act as an "inquiry office," a "sample warehouse," or even as an "emigrants' agency." The Imperial Institute is the natural result of the Indian and Colonial Exhibition, and its aim should be to afford a permanently illustrated exposition of the physical, moral, and social resources of India and the British colonies.

Great also is the educational value of the international exhibitions from time to time held, for they bring before us the resources of different countries, and what has been achieved in industrial progress up to a specific period; and I congratulate France on her summoning all nations to another industrial tournament in Paris in 1889. Such an exhibition has nothing whatever to do with politics, and it would be unworthy of Britain or of any civilised nation to allow petty jealousies or political considerations to stand in the way of a hearty co-operation for its success. If London was the first to invite the world to an open competition of skill, Paris was prompt in pursuing the same path. I sincerely regret that Her Majesty's Government has not seen its way to take an official part in the exhibition; but Government action is not necessary, and British producers and manufacturers, as well as British artists, well know that it will be to their interest to come forward and to give ample evidence of their power and progress in every branch of national industry.

Nigh forty years will have elapsed since the first international exhibition in London in 1851, and what revolutions have taken place in industry! what expansion of commerce! how many countries have risen and taken their place in the family of nations! A keen rivalry has happily been thereby excited in all the realm of science and art. Many have complained that ever since the first exhibition, when we laid open to all the world all our wealth of invention and all our secrets in manufacture, and like Hezekiah of old, showed to the strangers all the precious things in our house, the silver, the gold, and the spices, with the precious ointment, and the house of our armour, and all that was found in our treasure, the glory of British industry has departed. But if we have opened our treasures to foreign countries, they have opened theirs to us; and, in truth, with the specifications of every patent of inventions in every country published and made known, there is no longer any secret, and no one can hide the fruit of his skill. During the last fifty years science has done much for commerce and industry. From astronomy and geology, from chemistry and biology, from mathematics and mechanics, lessons have been derived of momentous value. It is not in vain that the British Association for the Advancement of Science makes its annual pilgrimage, one year in Manchester, the heart of the textile industry; another year in Wolverhampton, the very centre of metal workshops; and another in Newcastle-on-Tyne, where chemicals, shipbuilding, and heavy machinery have found a home. Though our legislators seem to grudge every penny demanded for education, the still small voice of science makes itself in the end fully heard. Depend upon it, the strength of commerce and industry lies in marching hand in hand with science and art, just as the strength of science and art lies in their subserving the practical interests of life. But if commerce and industry have thriven, it is because the last fifty years have been years of comparative peace. Up to the very commencement of Queen Victoria's reign, the bitter fruits of the great continental war were still manifest. Our finances were in disorder, agriculture was depressed, trade was shattered. Wiser counsels have happily governed the foreign policy of England, and though the din of distant war seems ever present, the nation has learnt its cost, and will not lightly plunge into it. Fed and animated by science and art, and nurtured in peace, the commerce of the world must ever increase, and we may confidently anticipate that the British manufacturer and merchant, with the same qualities of power, skill, and enterprise now as ever they had, will in the future, as in the past, not only maintain their high place, but prove formidable champions in the field of commerce and industry in the face of competitors all over the world.

II.—*The World's Wheat Production.* *By* FRANCOIS BERNARD.

(Translated from the *Journal des Economistes*, July, 1887.)

"If there is one question more than another which is deserving of public attention, it is that of the supply of bread at the cheapest possible rate to the mass of the population. It has been frequently shown that in a workman's household this expense absorbs from a sixth part to a quarter of his income, and in some cases the proportion is even higher than this, while in the households of the well to do classes, it does not count for more than a hundredth part, or an infinitesimal amount. A shilling a day for bread is an important item in a working man's expenditure, while it is an insignificant item in the expenses of those more favoured by fortune. A rise in the price of bread is very severely felt in popular economy, while on the other hand a fall comes as a positive boon, to such an extent does it relieve the overtaxed pockets of the labouring classes. Such is the importance of the question of the price of wheat, that it partakes of the nature of a grave social problem, and it is therefore not surprising to find it always before us, and always being discussed in one form or another.

"The question, however, in France as well as in many neighbouring countries has become complicated in the most unfortunate manner by the intervention of the agricultural interests of the national producers. Farmers are naturally desirous of disposing of their wheat to the best possible advantage, and they are very loud in their complaints when a fall in prices takes place, while it is precisely at this time that the consumers are benefited. There appears to be between the consumers and producers of French wheat a conflict of interests, so pronounced that in the words of Montaigne, the profit of the one is the loss of the other. Moreover the problem is far from being confined to France alone. To study it in all its bearings it is necessary to extend our observations over the entire universe.

"Less than half a century ago, the public mind was preoccupied with little beyond the cares of providing against a scarcity of provisions and of discovering the means of diminishing its evil consequences, but within the last few years fresh factors have come into play which have fixed themselves upon public attention. The peopling of new countries which the present century has witnessed has made its influence very severely felt in the old world. A fresh equilibrium has been established between the producing agents, and the period of transition is disastrous for the European countries, which had not then to struggle with these new comers, which to-day are the United States, Canada, India, and Australia, and to-morrow may be La Plata and Madagascar.

"The development of railways in the interior of the continents has been one of the principal causes of the rapid increase in the exports of cereals from these countries. Each mile of railroad open in a new country is a kind of centrifugal pump furnishing for exportation hundreds of tons of the products of this country. The development of the mercantile navies, more rapid even than that of the railways, has effected a considerable diminution in the rates of freight, and in the means of bringing within reach the markets of densely populated countries where products find a ready sale. In fine, a little development in the production, a little more in the circulation have done more in thirty years for universal competition than two centuries of steady progress in another age could have effected in this direction.

"From a strictly humanitarian point of view there is very little to regret in the events which have taken place of recent years, and they can only be attended with good results in the future; but looking at it from the standpoint of the interests involved, the results are widely different. The complaints of the agriculturists have become louder; under their influence the customs duties in a number of countries have been considerably increased, and the condition of the consumers very much modified.

"The production of wheat is limited to the temperate zone of our globe, and yet at the present day we find it extending to certain regions of British India, where only a short time ago it would have been considered impossible for it to have been effected on so vast a scale. The following table, which has been extracted from the returns of the Agricultural Department of Washington, shows the production of wheat in the various countries of the world in each of the years 1885 and 1886, as far as the same can be given:—

Countries.	1885.	1886.
Austria-Hungary—	Winchester bshls.	Winchester bshls.
Austria	39,725,000	36,850,613
Hungary	114,638,868	106,150,875
Belgium	19,573,926	18,514,688
Denmark	5,000,000	4,731,531
France	312,912,137	299,107,620
Germany	106,973,750	82,000,000
Great Britain and Ireland	82,145,888	65,285,353
Greece	4,965,625	4,937,250
Italy	118,244,589	129,412,133
Netherlands	4,965,625	4,937,250
Portugal	7,661,250	8,228,750
Roumania	22,629,063	22,629,063
Russia	209,192,256	213,907,084
Servia	4,681,875	4,525,813
Spain	115,500,000	131,660,000
Sweden-Norway	2,837,500	2,468,625
Switzerland	2,057,188	1,645,750
Turkey in Europe	45,400,000	41,143,750
Other European countries	567,500	—
Total European	1,117,672,040	—
Canada	35,000,000	37,219,234
United States	357,112,000	457,218,000
Mexico	4,114,375	No returns
Central America	411,438	,,
Antilles	411,438	,,
Chili, Argentine, &c.	25,000,000	28,800,625
Australasia	37,077,134	22,258,146
India	287,955,584	258,317,632
Persia	26,743,438	No returns
Syria	16,457,500	,,
Asia Minor	43,200,938	,,
Egypt	14,187,500	16,457,500
Algeria	22,700,000	32,915,000
Tunis	2,837,500	No returns
South Coast of Africa	8,228,750	,,
Total production of the world	1,998,997,635	—

"These countries do not all present from an economic point of view the same degree of interest. Some like the United Kingdom and France are exclusively countries of importation; and they exercise a considerable influence upon the various markets. They are the countries in fact which cause the rise in prices; while the others such as the United States, India, and Canada are regular exporters; they constitute the granaries of the world, and represent the supply, that is to say the fall in prices. Owing to the numerous and rapid means of communication which exist at the present day, the consumer is brought within touch of the producer, and countries even those which, like Spain for example, seem by reason of the almost perfect equilibrium which exists between their production and consumption, independent therefore in this respect of other countries, are influenced by this universal competition which is definitely established. What, it may be asked, will be the condition of the equilibrium which may be reasonably expected to be attained? This is a problem in the elucidation of which we must first of all enter into certain details respecting the principal factors of this equilibrium. At the present day there is an abundance of information upon this point, and the study becomes a comparatively easy one. We may take this opportunity of observing that all the data quoted in this present review are taken from the official returns of the various countries to which they refer.

"Among the principal wheat exporting countries the United States of America takes the first rank at the present day. The average annual exports from this country for the decennial period comprised between the years 1877-86 is about 94,900,000 bushels, and the annual yield amounts to 440 million bushels. And these figures, it may be observed, do not by any means represent the maximum yield attainable. It may we think be confidently predicted that twenty years hence the production will reach 550 million bushels, and the annual export 137 millions, and this is not an exaggerated estimate when we take into consideration the fact that the area of land available for wheat cultivation, notwithstanding several reports to the contrary, and particularly that of the Italian Senator Signor Lampertico, which has recently been issued, is still far from being exhausted.

" The United States, although appearing somewhat late in the field as a wheat cultivating country, has developed its production with astonishing rapidity. The following statement will show the progress made since the year 1839 :—

Years ended 31st December.	Area under Wheat Cultivation.	Total Production.
	Acres.	Winchester bshls.
1839	No returns	84,823,222
'49	"	100,485,944
'59	"	173,104,924
'69	"	287,745,626
'70	18,992,591	235,884,700
'75	26,381,512	292,136,000
'79	35,430,052	459,479,505
'80	37,986,717	498,549,868
'81	37,709,020	383,280,090
'82	37,067,194	504,185,470
'83	36,455,593	421,086,160
'84	39,475,885	512,763,900
'85	34,189,246	357,112,000
'86	36,806,184	457,218,000

"This enormous production admits of a considerable exportation of wheat and wheat flour, which was as follows during each of the years from 1877 to 1886 inclusive; the wheat flour being reduced to bushels of wheat:—

Years, ended 30th June.	Exports of Wheat and Wheat Flour.		
	Wheat.	Wheat Flour.	Total.
	Winchester bshls.	Winchester bshls.	Winchester bshls.
1877	40,325,611	15,046,492	55,372,103
'78	72,404,961	17,762,998	90,167,959
'79	122,353,936	25,333,713	147,687,649
'80	153,252,795	27,051,385	180,304,180
'81	150,565,477	35,756,037	186,321,514
'82	95,271,802	26,620,587	121,892,389
'83	106,385,828	41,425,488	147,811,316
'84	70,349,012	41,185,170	111,534,182
'85	84,653,714	47,916,652	132,570,366
'86	57,759,209	36,806,584	94,565,793

"England receives the greater part of these exports of wheat and wheat flour, and the amount taken by her during the year 1886 amounted to 71,608,000 bushels, while the imports into France from the United States during each of the years from 1879 to 1886, according to the French official returns, were as follows:—

Years.	Quantities Imported into France from the United States.
	Bshls.
1879	49,713,000
'80	47,138,000
'81	23,567,000
'82	21,718,000
'83	13,830,000
'84	10,776,000
'85	6,296,000
'86	11,833,000

"Although the maximum amounts correspond with the inferior harvests in France of 1879 and 1880, the importation of wheat into this country from the United States is far from being at an end.

"It must not, however, be forgotten that the population of the United States is rapidly increasing, it is not less at the present day than 60 millions, and, moreover, we gather from the Statistical Abstract for the year 1885, that the consumption *per capita* has a tendency to increase in equal ratio, it has risen in fact from 4 bushels per head to 6 bushels. It may therefore be predicted that the day will come when the United States with an overwhelming population will consume almost as much wheat as it produces. This, however, is not likely to happen for some considerable time to come, but it is a contingency which it would be well not to overlook. On the one hand, the American population increases with such rapidity—from 23 millions in 1850 to 31 millions in 1860, to 38½ millions in 1870, and to 50 millions in 1880—in fact it has more than doubled in a space of only thirty years. On the other hand, the land suitable for wheat cultivation will not, in all probability, be always equally fertile: the nature of the soil, the scarcity of rain in the highlands comprised between 100° and 120° of longitude, will oppose serious obstacles to its extension. There is another important point which we cannot afford to overlook, namely, the relative weakness of the yield which, in the best years, like 1884, has not exceeded 13 bushels per acre. A careful cultivation ought necessarily to take the place of the present extensive cultivation, since the exhaustion of the natural fertility of the cleared lands, which is already beginning to be apparent, will itself become the principal obstacle to the continuance of the same cultivation.

"Since the year 1880 no progress, according to the statistical returns from which we have quoted, appears to have been made. The area devoted to wheat cultivation seems never to exceed 37 million acres, and the production varies between 360 and 500 million bushels. It may probably be that there is merely a temporary lull, but it is none the less an indication of considerable importance.

"The various systems adopted in the American grain trade have been minutely described in numerous reports, official and otherwise, and accounts have been given of the high wages paid to the workmen engaged in this industry, of the perfected machinery employed, the many ramifications of railway lines for transporting the crops, and of the elevators established in the various stations and ports for handling the grain. The grain trade appears to be centralised in two cities—New York and Chicago—although New Orleans and Saint Louis are not without importance in this industry. The best known varieties of wheat, and those which find the readiest sale on the markets, are the Red Winter No. 2 and the Spring Wheat No. 2, the latter being particularly preferred at Chicago. The wheats of California and Texas are also quoted separately on the markets of San Francisco and New Orleans.

"The second great wheat exporting country is India, where the English are straining every nerve to encourage its production, and with this object in view, the construction of railways and irrigating canals in the interior is being actively pushed forward. Nothing in fact is neglected to give an impetus to this important industry. Previous to 1870 Indian wheat was unknown in Europe, and people little thought that a country so densely populated would ever be able to become an exporter of so precious an article of food. A reference to the subjoined table will show the progress made in wheat exports from India since the year 1872-73:—

Years ended 31st March.	Quantity of Wheat Exported.	Years ended 31st March.	Quantity of Wheat Exported.
	cwts.		cwts.
1873	394,000	1880	2,201,515
'74	1,756,000	'81	7,444,000
'75	1,074,000	'82	19,901,000
'76	2,511,000	'83	14,193,000
'77	5,587,000	'84	20,956,000
'78	6,573,000	'85	15,855,000
'79	1,056,000	'86	21,068,000

Of these exports France has taken during the last seven years the following amounts :—

Years ended 31st March.	Quantity.
	cwts.
1880	74,164
'81	1,346,750
'82	5,308,073
'83	3,567,712
'84	3,397,908
'85	3,312,135
'86	2,145,243

Egypt and Belgium receive about the same quantity as France, while England and, since 1886, Italy divide between them the remainder of the Indian exports :—

"The production of Indian wheat at the present day has assumed very considerable proportions. In February, 1886, the area under wheat cultivation was estimated as follows :—

	Acres.
Punjab	6,957,600
North-West Provinces and Oudh	5,240,380
Central Provinces	3,902,707
Bombay	2,969,539
Berar	808,515
	19,878,741

And to this extent of land must be added an area of 7,014,000 acres belonging to the native States, making a grand total of 26,892,741 acres. In a paper read before the National Agricultural Society of France on the 18th August, 1886, M. Sagnier estimated at 61 million acres the total area that will eventually be placed under wheat cultivation in India.

"The average yield varies with the quality of the land, the conditions of irrigation, and the district between 6·6 and 12·3 bushels per acre. The maximum yield is found in lands of the first class in the Punjaub, where it reaches 20 bushels, and in Oudh 21 bushels. The minimum yield corresponds to the lands of the third class in Berar and Bombay, where it is established at the rate of 5 to 6·1 bushels. The general average yield per acre for all the lands under wheat cultivation in India is 13 bushels per acre, which is below the average French yield by about 4 bushels, and the English yield by about 15 bushels. Four principal varieties of wheat are grown in India—white, red, soft, and hard wheat. The hard wheat, red or white, is preferred by the local consumers.

"The increase in the extent of irrigated lands has been particularly noticeable during the last few years. It may be estimated at about 25 per cent. during the period comprised between the years 1879-85. The total production of wheat amounted to 290 million bushels in 1885, and to 258 millions in 1886. The whole of the enormous exports from India are sent from three ports, Bombay, Calcutta, and Kurrachee, the former counting for more than half the total trade.

" It would appear as if wheat cultivation in India had an excellent future before it. Labour is excessively cheap, the daily wages in fact of an agricultural labourer do not exceed 3*d*. a day; the soil is fertile, and the climate particularly favourable to the cultivation; the increased cultivation and production of Indian wheat is beginning to excite considerable attention in America, and the question of Indian wheat taking the place of American wheat on the European markets is being seriously discussed in American newspapers. Conditions have not been favourable in former years for large Indian exports, mainly from lack of transportation facilities, but this difficulty will shortly be overcome, and competition will then become keen. In India, however, as in the United States, increased exportation will perforce be restricted by the area available for cultivation and by home consumption. At the present moment those presidencies in which the largest cultivation of wheat is carried on, and particularly the Punjaub, already consume seven-eighths of their total production, and if we consider that in this country there are 240 millions of people, who are naturally desirous of improving the quality of their daily food, and that this population would represent in France a consumption of 1,716 million bushels of wheat, which would necessitate an area of 148 million acres of land under wheat cultivation, it will be seen that the inundation of the European markets by Indian wheat is far from being an actual cause of economic disturbance.

" Australasia, in its turn, is becoming a wheat-growing country. The exports, which ten years ago were practically *nil*, amounted to more than 660 million cwts. in 1884. London and Marseilles were the outlets for this enormous production. In 1885 and 1886, however, there was a considerable falling off in exports, consequent upon bad harvests, and England in the latter year only received from Australasia about 1,300,000 bushels. There can be no question as to there being a magnificent future for wheat in Australia, for in this country, even more than in the United States, there is an immense extent of land available for its cultivation.

" There is much also to be said of the wheat production in the basin of the La Plata, where it promises, at no distant date, to become a very important element in the commercial wealth of the country, more especially as a constant stream of emigration is now steadily flowing there, and a period of political tranquillity appears to have set in. In this country the very rapid development of the railway system will be the best stimulus. Unfortunately, in view of the unimportance of the annual yield, which does not average more than 27 million bushels, but little statistical attention appears to have been devoted to this industry, and the official publications of the Argentine Government give but little information upon the subject. Be this as it may, one might, we think, safely predict that twenty years hence wheat cultivation in La Plata will occupy the same position in the world as that now held by the United States. From returns which have recently been published on the subject, it appears that the amount of wheat annually exported from La Plata was as follows:—

	Bushels.
1883	2,222,000
'84	3,863,000
'85	2,794,000
'86	3,987,000

"In Europe there are no wheat-producing districts of any great importance with the exception of the lower valleys of the Danube, Hungary, Roumania, and Russia. Hungary and Roumania take advantage of the river to convey their wheat by Galatz and Ibralia principally to Marseilles. As regards Russia, this country, long before the question of American wheat attracted the attention it now does, excited feelings of the very gravest apprehension in western Europe, and France in particular. At the present day she is far from occupying the position she previously held as a wheat-producing country; her annual yield, in fact, does not exceed 210 million bushels. It is true that this production is capable of very considerable development, but the excess will not always be available for exportation, for the population is rapidly increasing, and the ordinary food of the people is in urgent need of some improvement. According to a report recently published in the Russian *Journal du Ministère des Finances*, the wheat cultivated in the basin of the Volga is divided into three classes, wheat acclimatised, or *pererod*, Saxon wheat, or *Saxonka*, and *Roussak*. The quality of the *pererod* is much superior to the other two, it is consumed exclusively in Russia, in the governments of Moscow, Kazan, Nijni-Novgorod, Kostroma, Jaroslav, Iver, and Riazan. The *Saxonka* and the *Roussak* are exported; the former is regularly quoted on the London market, and the latter on the German markets. Saxonka wheat is almost exclusively cultivated by German colonists.

"The transport of grain in Russia is usually effected by waggons to the various ports, and as far as circumstances will permit by canal. The railways also convey considerable quantities to St. Petersburg and Lake Ladoga, but they do not play a very important part in grain carrying. The sales usually commence as soon as the harvest is finished, that is about the 15th (27th) August, but the principal sales are effected in the winter and the spring. In the north of the Empire, the ports from which the largest shipments are made are St. Petersburg and Riga; in the south, Odessa, Rostoff, Taganrog, and a few others of minor importance. Almost the whole of the Russian grain imported into France comes from the Black Sea, and is discharged at Marseilles. This is produced in the basins of the Don, the Dnieper, and the Dniester, in Podolia and Bessarabia, and particularly in the black earth region. The following statement will show the quantity of Russian wheat imported into France in each of the four years ended 1886:—

	Bushels.
1883	12,375,000
'84	9,586,000
'85	10,073,000
'86	9,094,000

"To complete the list of exporting countries we must add Algeria, Turkey, Syria, Asia Minor, and Persia; and the quantity of wheat annually produced may be seen by reference to the table given above. A very considerable trade is carried on, particularly in England, in Persian wheat, which made its appearance in Europe about the same time as Indian wheat, and is regularly quoted on the London market.

"We have no precise data as to the quantity of wheat annually displaced to provide for the requirements of the consumers in the two hemispheres, but it may, we think, be approximately estimated at between 250 and 275 million bushels, that is about a seventh or an eighth part of the total yield.

"The countries of importation are not so interesting a study as those of production. They have all the same characteristics, and they are all situated in western Europe, as the following list will show: The United Kingdom, France, Belgium, Switzerland, Italy, and Germany. Each of these countries is densely populated, and their manufacturing industries are in a high state of development, but in order to provide themselves with the means of paying for the food supplies which they are obliged to import, it will be necessary for them to apply themselves with renewed activity to the creation of resources. Then while exporting countries have all, without exception, a system of extensive agriculture, in importing countries, on the contrary, a system of intensive farming is practised, which it is absolutely necessary for them to improve and perfect.

"Great Britain ranks first among wheat importing countries. Her production for the last three years has averaged about 75 million bushels, and in 1886 it only amounted to 63 millions, while the area devoted to its cultivation is about 2,355,000 acres. The average yield per acre is the highest in the world, amounting to as much as 26·89 bushels in the year 1886. To provide for its annual consumption this country imported the following quantities of wheat and wheat flour reduced to wheat, during each of the years 1881 to 1886:—

Years.	Wheat.	Wheat Flour.	Total.
	Qrs.	Qrs.	Qrs.
1881	13,187,984	3,214,966	16,432,950
'82	14,824,788	3,730,687	18,555,475
'83	14,801,223	4,665,518	19,466,741
'84	10,916,805	4,312,943	15,229,748
'85	14,192,045	4,523,669	18,715,714
'86	10,946,724	4,197,017	15,143,741

"Thus we find an annual average importation of 17,250,000 quarters as compared with a production only amounting to about three-fifths of this quantity. In spite of the unique position occupied by England, as much from a political as an agricultural point of view; in spite also of the *régime* of free trade adopted in this country since 1847, English politicians are greatly exercised on the question of their dependent position in the matter of food supplies. Sometimes under the name of 'fair trade,' and sometimes under that of 'protection,' those interested in agricultural questions—the producers especially—are clamouring for the imposition of customs duties on the importation of foreign wheat, and this campaign is being actively carried on. The arguments put forward to support their demands are reduced to two, the necessity of self dependence in the event of war, and of imparting to English agriculture, which for the last ten or twelve years has remained almost stationary, a powerful stimulus to improvement. The real object however that is in view is none other than to increase the selling price of the home product. We will now proceed to devote some attention to the position of France as a wheat importing country. The grain question in this country has however been so frequently considered, and has been the subject of so many exhaustive reviews and discussions, that it will be unnecessary to trace its past history.

"Who does not remember the Draconian laws of the convention regulating the maximum prices and monopolies, the Machiavellian *régime* of the sliding scale adopted under the Restoration in 1819, a *régime* which in reality had no other object than to prevent wheat becoming too cheap, and which during the reign of Louis Philippe was defended in the tribune in the following words: 'Yes, I intend to enrich a certain class of landowners, for the sufficient reason that they constitute our electoral basis. I have before me large owners of the soil, and my desire is that these landowners should become more firmly attached to the existing dynasty by interests that we shall do our best to further by placing a duty upon wheat.'

"After a compulsory suspension of the sliding scale necessitated by the bad harvest of 1847, and a final suspension in 1853, the commercial *régime* initiated in 1860 only allowed a duty of 60 centimes per quintal métrique to be imposed upon the importation of grain. The port of Marseilles rapidly became under its influence one of the principal wheat *entrepôts* of the world. It is true that at this period both the producing and exporting countries were confined to the basin of the Mediterranean; it was Algeria which first commenced to open up fresh ground, and then the lower Danube, Turkey, and Russia.

"From 1860 to 1885 the customs *régime* as regards wheat underwent very little change, the duty of 60 centimes per quintal was maintained without any alteration, and it was only by the law of the 28th of March, 1885, that the duty of 3 frs., representing more than 15 per cent. of the value of the product, was imposed. It now appears that even this is not sufficient, since very recently the law of the 30th March, 1887, has raised the import duty to 5 frs. per quintal.

"The cultivation of wheat in France is by far the most important of all her agricultural industries. It covers annually about 17 million acres of land, that is about a fourth part of the whole cultivable area of the country, which is estimated at between 60 and 65 million acres, exclusive of grass land. The following statement, which has been prepared from returns furnished by the Minister of Agriculture, will show for the decennial period 1876-85, and for the year 1886, the extent of land under wheat cultivation, the total production, and the average yield per acre:—

	Decennial Period 1876-85.	Year 1886.
Area under wheat .... acres	17,087,000	17,272,000
Total production .... bshls.	280,359,000	289,886,000
Average yield per acre .... „	16·4	16·7

"It should be observed that the decennial period comprises the year 1879, which by reason of the unfavourable climatic conditions was, as regards the harvest, the worst of the whole century. In this year the total wheat production did not exceed 220 million bushels, with an average yield to the acre of a little over 12·7 bushels.

"There are various methods of estimating the requirements of consumption, but the safest, and withal the simplest, is to take the quantity produced, add to it the amount imported, and deduct the exports, if any. In the case of an isolated year this method might perhaps be defective, but if we take a series of years it becomes, on the contrary, absolutely correct, or at least as correct as the statistical data furnished by the various official bureaux will permit. As regards France it appears from the agricultural returns that consumption has largely increased, and that wheat has become the staple food of a considerable proportion of the population who hitherto only consumed rye, chestnuts, or similar inferior products. While the annual consumption for the periods 1821-30 only amounted to 165 million bushels, it rose to 223 millions in 1850, and at the present day, taking the period 1874-83, it exceeds 321 million bushels. For the last three years the average annual consumption calculated in the same manner has risen to 336 million bushels. Taking in round numbers 290 million bushels as representing the production, and 335 million bushels the consumption, it results that there is a normal deficiency of 45 millions, less than a sixth of the total production, and for which France is absolutely dependent upon foreign countries.

"It was only in the year 1878 that the imports of wheat into France attained any very considerable proportions, deduction being made of the exports. Previous to this date it was only in those years characterised by exceptionally high prices, such for example as 1854, 1856, 1861, and 1868, that they assumed any importance. As a general rule the exports balanced the imports within 4 and 5 million bushels, and the balance was frequently in favour of the exports. Since the year 1878 French exports of wheat have been practically *nil*, while the imports have been as follows:—

Years.	Quantity of Wheat Imported.
	Bshls.
1878	47,698,000
'79	81,730,000
'80	73,328,000
'81	47,987,000
'82	47,352,000
'83	37,004,000
'84	29,325,000
'85	30,000,000
'86	36,000,000

"To complete the statistical data upon this subject we must refer to the source from which French wheat imports are drawn. For this purpose we will take the year 1886, which is the latest for which returns are available, and which exhibits moreover no abnormal features with the exception of the remarkable insignificance of the Australian supplies.

Countries of Origin.	Quantities of Wheat Imported into France in the Year 1886.
	Bshls.
Belgium	575,000
Russia	9,094,000
Roumania	1,057,000
Turkey	1.390,000
British India	6,312,000
Australia	21,000
United States, Atlantic	10,022,000
,, Pacific	1,811,000
Algeria	4,630,000
Other countries	1,088,000
Total	36,000,000

"There only remains now to be considered the question of the influences at work upon the various markets, and the effects exercised by them upon social economy, in other words what will the future condition of France be on the universal market in the matter of wheat production, and the reply to this question is furnished by an explanation of the circumstances which influence prices and supplies. The selling prices by which one is always tempted to measure the prosperity of a particular industry, furnish us with by no means a satisfactory basis, if we do not take into consideration all the factors which go to determine them.

"In 1879, a bad harvest year, only 220 million bushels were produced to meet the demands of 324 millions required for home consumption. The years 1878, 1880, and 1881 were characterised by an equally deficient yield, but the anticipation of a rapid rise in prices were fortunately not realised, in fact they did not exceed the level of 1874. Foreign importations fortunately came in to supply the deficiency in the national production and to neutralise the evil effects of a bad harvest. From the year 1882 prices fell, and have remained at a low point until the end of 1886, in spite of the law of the 28th March, 1885, which established a customs duty of 3 frs. per quintal on the importation of foreign wheat. This is not the first time that wheat realised such low prices, as the same thing occurred in 1824, 1848, 1858, 1859, and 1869; while they were even lower in 1822, 1825, 1826, 1833, 1834, 1835, 1849, 1850, and 1851. A reference to the following table will show the average prices per quarter of wheat in France compared with the United Kingdom during each of the last twenty-one years:—

Years.	Average Prices of Wheat per Quarter.	
	In France.	In England.
	s. *d.*	*s.* *d.*
1866	45 8	49 11
'67	60 11	64 5
'68	62 –	63 9
'69	47 4	48 2
'70	47 8	46 10
'71	59 8	56 8
'72	53 11	57 –
'73	59 7	58 8
'74	58 5	55 8
'75	45 –	45 2
'76	47 11	46 2
'77	54 7	56 9
'78	49 5	46 5
'79	52 –	43 10
'80	51 8	44 4
'81	51 8	45 4
'82	44 11	45 1
'83	44 3	41 7
'84	41 4	35 8
'85	39 1	32 10
'86	39 8	31 –

"In a review of this nature there is one fact which must never be lost sight of, and that is that prices are influenced as much by the consuming markets as by the conditions of production, in other words they are subject to the law of supply and demand. It is the neglect of this law that in great measure the dire forebodings of the pessimists are due. M. Thiers in particular, utterly ignored it thirty years ago, when he held up the spectre of Russian wheat inundating French markets. What then are the factors which determine the prices of wheat? We may first observe that the standard of prices has of late years very considerably fallen, and in France the fall has been particularly marked since the year 1883. On the other hand, it is equally true that the proportion of taxation to income has risen in France to as high as 14·7 per cent., while in Germany it is only 12·1, in Canada 6, in the United States 4·9, and in the United Kingdom it is 7·1 per cent.; in Australia, however, the ratio is 17·3 per cent., and Italy 18 per cent.

"According to the table given above, it will be seen generally that since 1877 the prices on the French markets have been much higher than the English. For the last ten years this difference in prices, calculating for the average, is not less than 7*d.* per bushel. This in itself constitutes a revenue of 10 millions sterling, which the French producers annually enjoy at the expense of the national consumers.

"It would not appear therefore that this is exactly an appropriate time to endeavour, through the medium of customs legislation, to raise the prices of wheat. The custom house is however considered at the present day as the supreme agent of economic action, and the list of those countries which have not established a high import duty on foreign wheat is a very short one; it is as follows: Russia, Brazil, the United Kingdom, Belgium, Holland, Denmark, and Sweden; and even in these countries the opinion as to the wisdom of their fiscal policy is very much divided. Of those European countries in which an import duty on wheat is imposed, Spain and Portugal are the only ones in which this duty is higher than in France. In Austria, Hungary, and Germany the rates are about the same; and next in order comes Italy, which has recently raised the duty from 1·40 frs. to 3 frs. per quintal. Turkey, Greece, China, Switzerland, and Canada even, have all combined in this direction either to protect themselves against foreign competition or to swell their budgets. Variations therefore in the rates of customs duties constitute an important element in determining the prices of wheat.

"In proportion to its area, France takes one of the first places among wheat producing countries, this country alone supplying a seventh part of the total harvests of the world. The yield, of which the average for the quinquennial period 1882-87 exceeds 17·8 bushels per acre, and which sometimes amounts to as much as 36 bushels for the better cultivated areas, leaves however much to be desired in the aggregate; the reason being that wheat being generally considered as an indispensable cultivation, it only exhibits in localities which are not particularly favourable to it a very moderate yield. These yields are however higher than those in all the young countries where land is cheap, and manual labour very dear, but they compare very unfavourably with the yields in England, Belgium, Holland, and Denmark. If wheat culture in France were to take the place normally suited to it, and that place alone, there can be no question as to it always remaining a remunerative industry. It is to be noted first that the French producers will always enjoy on their own markets the advantage of their position, however inferior may be the results of their cultivation, and there can be no question that the cost of transporting grain from the interior of America or India to the French ocean and Mediterranean ports, added to the duties and taxes which such grain has to bear, and the high prices of labour, must enchance its price in France, where the large producers raise from 20 to 30 bushels per acre; while in the exporting countries the production averages 12 to 15 bushels only, and the cost of labour (except in India) is very much higher. It would be permissible to establish fixed selling prices, but in agriculture such prices have only a relative value, and if we attempted to generalise them we should be liable to the gravest errors.

"Then again we must guard against attempting to draw comparisons between prices that are not comparable. The Marseilles Chamber of Commerce has affirmed recently that certain foreign wheats are quoted up to 4 and 5 frs. above the price of home grown wheat. Buyers for consumption perfectly well know what they can pay when they are purchasing their supplies, and they frequently perfect the qualities of one description by the qualities of another. French wheats are therefore not competed with, since it becomes a question of a different class of products. In the third place it should be noted that French agriculture which is obstinately determined to look for its welfare in the production of an article invariably at a loss, would not only be ruinous in itself, but be worthy of a race of idiots. It is true the objection is frequently made that it is impossible for agriculturists to devote themselves to another production, that to effect a complete revolution in cultivation is not the work of a year, and that even if undertaken, such a transformation would require a very considerable expenditure of capital. It would be easy to reply that this capital would soon be forthcoming when it became clear that any urgent need existed for it; the phylloxera invasion, the heaviest affliction that any country could possibly have to bear, has clearly shown that if capital is occasionally scarce, it is generally forthcoming when an undertaking presents itself which promises to be a profitable one, even under the sole influence of private initiative.

"It may also be urged that speculation in live stock would be a profitable investment at the present day, the price of meat, we are told, having steadily risen during the last century. Finally, in an old and densely populated country it is absolutely essential that instead of the present system of intensive agriculture carried on with limited capital, a system of industrial agriculture with increased yields should be adopted. The land in fact should be treated in the same manner as an industrial establishment. Intensive and scientific cultivation always knows how to lower its net cost when it is judiciously carried on. Wheat costing 2*s.* 10*d.* a bushel is not at all an exceptional circumstance on first class lands. It results therefore from the foregoing that it is not to a customs duty, either high or low, that French agriculture will have to look for its salvation; moreover, such a duty would only affect a very small minority of landowners, say about 200,000, who deal in wheat, while it would be a heavy burden imposed upon the nation at large; and as we have before pointed out, it would weigh most heavily upon the class which is least able to support it, and besides, it places a decided restraint upon commercial transactions. Again, there is another and fatal objection to the imposition of a duty on wheat, since the prices depend upon the requirements of the consumers. It is precisely in bad harvest years in France that such a duty would act with the greatest intensity, and would contribute to accentuate the rise in prices; while, on the contrary, it is particularly at this moment that its free entry becomes a question of public utility. This is so true that during the existence of the sliding scale the Government invariably suspended its application directly a period of want was imminent. Sometimes, however, it unfortunately happened that they acted when it was too late, and this was particularly the case in 1846, when the most disastrous results were experienced from their tardy action.

"To give greater precision to the foregoing observations it will be necessary to quote a few more figures, and we will commence by calling attention to the following statement, which shows the average export price of wheat in the United States during the last fifteen years:—

Years.	Average Export Price per Bushel.	
	s.	*d.*
1873–74	5	11½
'74–75	4	8
'75–76	5	2
'76–77	4	10½
'77–78	5	7
'78–79	4	5½
'79–80	5	2
'80–81	4	7½
'81–82	4	11½
'82–83	4	8½
'83–84	4	5½
'84–85	3	7
'85–86	3	7½

The total farm value of the wheat crop of 1885 was 57,505,000*l.* or 3*s.* 2*d.* per bushel. This estimate of the average net cost of cultivation is worth no more than the generality of such estimates, more particularly when they apply to such an immense territory as the United States.

"As regards the prices of wheat quoted on the New York market, they were as follows at the undermentioned periods:—

	Per Bushel.	
	s.	*d.*
31st December, 1886	3	11¾
1st February, '87	3	11
4th March, '87	3	9¾
2nd April, '87	3	11½

while the following were the rates of freight in effect on the 1st March last:—

	Per Bushel.
	d.
New York to Glasgow (Anchor Line)	3½
" Liverpool (Guion ")	3
" " (White Star Line)	3¾
" " (Inman Line)	3¾
" Havre (Compagnie Transatlantique)	4
" Bremen (North German Line)	7

"These rates it should be observed will be augmented by 5 per cent. primage, and there is in addition to be included the insurance, the charges incidental to loading and discharging, and finally the commission, which generally averages about 2 per cent. Taking for example an importation of 1 bushel of American wheat into France, the net cost would be established as follows:—

	Per Bushel.	
	s.	*d.*
Sale price at New York	3	11½
Freight plus primage	–	4¼
Insurance 1 per cent.	–	–½
Incidental charges 3½ per cent.	–	1¾
	4	6

"This price, which is equivalent to 36*s.* per quarter, is not, it will be observed from the table we have given showing a comparison of the French and English prices, very much below the prices quoted on the French markets in 1885 and 1886. The national producers therefore have been protected to the whole extent of the 3 frs. duty of last March.

"As regards India it is easy to make similar calculations. The following figures will show the average prices of wheat at the three principal ports of shipment:—

	Bombay.		Kurrachee.		Calcutta.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*
Average price per cwt. in 1886-87	8	5	7	3	5	10
,, last two weeks, February, 1887	9	–	7	9	7	1

"From the end of 1886 to April, 1887, the rise was maintained on the Indian markets. The following table will show the prime cost of Indian standard wheat laid down in Europe:—

	Per Bushel.	
	s.	*d.*
Sale price on Indian market (average)	4	9
Loading charges	–	2¾
Freight from Bombay	–	7½
Insurance	–	–½
Incidental charges	–	1¾
	5	9½

"These figures are further influenced by the following causes. On the Indian market wheat is quoted at so much in weight per rupee, a system peculiar in itself, and one which renders a conversion into European measures and money a somewhat complicated calculation. On the other hand the silver rupee has become very much depreciated in value, at the present time it is only equivalent to about 1*s.* 5*d.* or 1*s.* 6*d.* Finally, Indian wheat suffers from a very considerable admixture of chaff, earth, and other extraneous matters, which entails the loss of a considerable proportion of the stocks sold in Europe.

"It is a curious fact that the official prices of wheat on the Bombay market are about 20 per cent. higher than the average commercial rates, and if we take the trade rates, the prices at which Indian wheat would have been placed on the Marseilles market in December, 1886, would have amounted to about 39*s.* 4*d.*, which is about the average price of wheat quoted on the French market in that year. Without going into any further calculations, which, as we have before observed, apply more to the trade selling prices than to the net cost of cultivation, which varies according to district and method of cultivation, we may confine ourselves to formulating the following conclusions: 'The actual wheat market is universal; the prices of this commodity are governed by the supply and the international requirements.'

"It is to the development of the ways of communication that this phenomenon is attributable, and we were therefore correct in saying at the commencement of this review, that in order to study this important question in all its bearings, it is indispensable to extend our observations over the entire universe.

"In conclusion we must devote some attention to the effects of the French law of the 29th March, 1887, by which the customs duty on foreign wheat imported into France has been increased to 5 frs. per quintal. This duty represents about 27 per cent. of the value of the product. It cannot therefore now be said that the interests of French agriculturists have been at all neglected by Parliament, since we have returned to the good old times of prohibition—as this duty is virtually a prohibitive one. As a matter of fact however it will not be prohibitive, for the sufficient reason that France is not in a position to produce all the wheat she requires for her home consumption, and is therefore compelled to fall back upon foreign importations.

"The natural result of the law of the 29th March last has been a formidable rise in price, and this law has virtually established a tax of 500 million frs. which is imposed in the interests of a privileged class. And on what is this tax levied? On bread, which constitutes the basis of the food supplies of the poorest classes of the community. If any proof of this were needed, it would be easily supplied by comparison of the average prices of wheat in France on the following dates, the 22nd January, the 26th February, and the 16th April last:—

	Average Price of Wheat on		
	22nd January, 1887.	26th February, 1887.	16th April, 1887.
	Per qr. *s.* *d.*	Per qr. *s.* *d.*	Per qr. *s.* *d.*
England	36 4	32 7	32 8
France	39 7	40 2	43 6

While in England we have to record in the short space of time intervening between the 22nd January and the 16th April a fall of 3*s.* 8*d.* per quarter; in France, thanks to the new law, we find a rise of 3*s.* 11*d.* per quarter, which brings to 7*s.* 7*d.* the difference existing between the prices quoted on the English and French markets, or, in other words about 85 per cent. of the duty has gone to enrich the producers. The total difference is really 10*s.* 10*d.*

"Will any one be prepared to say that this is the proper way to effect that reform in French agriculture which is so urgently needed? Is not the system adopted rather calculated to encourage agriculturists in their obstinate adhesion to old systems and methods of cultivation? At the time when the Bill for raising the duties on corn was before the chamber, it was affirmed by its supporters in the house that the proposed duty would be maintained without the price of bread being affected; nevertheless, by an excess of prudence which cannot be too highly commended, and as if the supporters of the measure were not themselves quite certain of the truth of their own statements, the following reservation was added: 'In exceptional circumstances, and when there is a probability of bread attaining a price which would virtually remove it beyond the reach of the mass of the population, the Government is empowered in the absence of the Chamber to suspend entirely or in part the provisions of the present law by a decree of the President of the Republic. Should this contingency occur, the measures adopted by the Government must be submitted to the chambers for ratification immediately on their reassembling.'

"At the rate at which the price of bread is now rising in France, it is far from improbable that this clause will be soon put into operation. From all parts of the country information is being received to the effect that bread has gone up in price, and we shall probably soon find ourselves under the *régime* of a new sliding scale, varying capriciously with the tendencies of the parties who may be in power. If bad harvest years happen to occur, what action would be taken? But we hardly dare to think what the consequences of this measure may be. One of the deputies, M. Pelletan, once had the courage to speak as follows from the tribune: 'Speculation, which is wealthy enough to poison the very wind that blows, will be powerful enough even to organise want and distress—a king of France once succeeded in doing so—and then this duty of yours will become so terrible, so odious, that it will call down curses and execrations from the starving population upon the heads of those misguided persons who voted in favour of such an abominable measure.' And this speech was loudly applauded by many of the members present.

"At Rodez the price of bread has risen by 6 centimes the kilogramme, at Narbonne by 4 centimes, and at Laval by 5 centimes. Everywhere in fact we find the bread is going up in price, and it is impossible to foretell the extent to which the rise will go. As a partial compensation however for this, it is announced that a movement is on foot to establish numerous bakeries near the northern frontier, and to import into France not the wheat which is taxed, but the bread which was overlooked by the law of last

March. The question now suggests itself, will the authorities pass another measure, having for its object the suppression of this novel invasion? If they do they will no longer be able to assert that they have no intention of taxing bread, and the Government would then be *directly* responsible for the rise in prices. The consequences would be so disastrous, as much from a social as a political point of view, that it seems highly improbable that the Government will allow itself to be urged on to this fatal step. We think that a moral may be drawn from the foregoing, that is, that the State should interfere as little as possible in private interests, and that private individuals should be allowed to manage their own affairs. If this principle were followed, we should all find ourselves in a far better position—the State included."

III.—*The Population of China.*

We extract the following articles and tables as to the population of China from the *North China Herald* of 15th July, 5th and 19th August of 1887:—

1. *Population.* (No. of 15th July.)

"The work of Malthus on population, written at the beginning of this century, indicates immense research and extreme caution on the part of the author in arriving at conclusions. Darwin confesses his obligations to it, and the philosophic spirit which animates it as shown in the patient searching out of the causes affecting the growth and decay of population in various countries, explains Darwin's admiration. The three causes which according to Malthus have led to an immense population in China are the fertility of the soil, the encouragement given to agriculture, and the practice of early marriages. He makes some mistakes, as when he says that infanticide is permitted; but those who know China best will make no objection to the opinion of this writer that these three causes have had great influence in swelling the number of the inhabitants of this country. He mentions as checks to population, droughts, hurricanes, wars, locusts, and disease, as also the employment of great quantities of grain in distilleries. He derived his information from Duhalde, Amyot, and other Jesuit writers on China, as might be expected from the accuracy of his views. There is an elaborate chapter in Williams's *Middle Kingdom* on the population of China, which contains many valuable hints and facts. We are now able to add some tables, which the reader will find on another page. They consist of a new table from the Board of Revenue, and another new table just published in Russian from another official source. Both these tables give the numbers arrived at by a recent census of the greater part of the empire. Beside these, there is a table of the taxpaying population of the empire for each year from 1723 to 1734. Liability to pay taxes also means capability of bearing arms. The last table gives the population for the empire from the year 1821 to 1848. This is quite new, and is taken from a work just published.

"The results of an examination of these tables will be found useful for correcting opinions formed by many persons, it may be on insufficient data. The increase during the reign of Taukwang, 1821 to 1848, was, according to the annual registration, 71,196,758; dividing this by 28, we obtain for the annual increase 2,542,500. This is 6·3 per cent. on 400 millions, and it amounts to an increase of 1 person to each group of 157 persons. Malthus mentions the increase annually in Sweden as 1 to 108, in Russia 1 to 63, in Prussia 1 to 62, in France 1 to 157, in England 1 to 131. Among these China most nearly approaches France. At this rate of increase the population will double itself in one hundred and fifty-seven years. But in this case the Chinese population is increasing at a much slower rate according to the annual census than in many European countries. This moderation in the annual increase is in favour of its being accepted as not exaggerated, and rather suggests in fact that the numbers are understated. Malthus found that the estimate of population for England in 1800 was too little by 1 in 74. The registration of births was imperfect. Just so it is in China with the population returns required by law to be presented annually by local magistrates. It is the duty of the village bailiff to report the population of his village every spring. If he cannot write himself he asks a villager who can do so to make out the list. The return is sometimes under the truth, through the desire felt by the fathers of grown up sons to save them from conscription. Only persons at home are counted, but occasionally when some visitor is expected he is counted in, in order that suspicion may not fall on him as an unregistered person when he arrives. The reasons for understating the number of a household are however much stronger than those for overstating it, and are much more widely influential. The people in a locality are often not counted again for many years in succession, the old lists being used.

"When Père Allerstain was president of the Board of Astronomy in 1760, he obtained the census from the Board of Revenue, and it gave 197 millions as the population of China for that year. The next year it was more than 198 millions. During the sixty years that elapsed from that time to the reign of Taukwang, the population rose to 355 millions. The increase was 157 millions, and was made up of annual additions of about 2½ millions; the same as in the period from 1820 to 1848. Knowing this fact, we feel confidence in the correctness of the returns. The causes of increase are always at work, the thoroughness of the agriculture, the fertility of the soil, the anxiety of parents to see their sons married by the time they are 18, the willingness of the women to be married at 17 or thereabouts, and become domestic drudges in their husband's home for the first few years of married life; the equality of sons as heirs to property, the thrifty habits of the people, and their adaptability to a variety of occupations requiring skill and industry. Yet with these powerful causes operating, the census is augmented at quite a moderate pace. Amyot, Malthus, Williams, accept and vindicate the Chinese numbers. It is just as well for us to follow these good examples of sober judgment on the part of men who have studied the subject. It is worth remarking that Amyot was astonished at the rapid increase of population which he noticed in Szechuen, which had risen from 144,000 families, liable to the population tax, to 3,036,342. He adds, 'this prodigious augmentation comes no doubt from the presence of refugees who sought a new home there at the time of the Manchu conquest.' He did not think that the census would a century later represent the population of Szechuen as 71 millions. Yet so it is. We must now be prepared for the unexpected conclusion that the provinces are none of them populated up to the point when the fertility of the soil cannot maintain the inhabitants. When drought and war occur, the people fly to the next province, the provinces take their turns in being thickly or thinly populated, and with new aids against famines and civil war they might, it would seem, support 800 millions without much difficulty. If this were the case, Kiangsu need not be more thickly peopled than it was forty years ago, and intelligent foreign travellers would scarcely notice the difference. The census returns for each year are imperfect, they are probably not really new in a multitude of cases. But when the people are counted it is done with as much accuracy as possible, and the amount is under the actual population."

Population of China in 1885.

[Translated from a document emanating from the Board of Revenue.]

Provinces.	Population.	Notes.
Fengtien	4,368,872	1. The fragmentary nature of this table is inevitable. The new census for Chili, Yünnan, Anhwei, Kuangsi, Kuiechow is not yet received by the Board of Revenue. The present population of these five provinces cannot be much short of 60 millions, and if it reached that amount it would help to bear out the correction of Mr. Popoff's estimate of 380 millions for the present population of China.
Jehol	725,375	
Shantung	36,545,704	
Shanse	10,791,341	
Honan	22,117,036	
Kiangsu	21,259,989	
Kiangsi	24,541,406	
Chekiang	11,685,348	
Hupei	33,600,492	
Hunan	21,005,171	
Szechuen	71,073,730	
Kuangtung	29,740,055	
Shensi	8,276,967	
Kirin	149,220	2. The number for Fukien is given for 1884.
Fukien	23,502,794	
	319,383,500	

Table of Population of China, drawn up by Mr. Popoff from Official Documents.

Provinces.	Population, 1842.	Population, 1882.	Gain and Loss.	English Square Mile.	Population in a Square Mile.
Shantung	29,529,877	36,247,835	+ 6,717,958	65,104	557
Shansi	17,096,925	12 211,453	− 4,845,472	56,268	221
Honan............	29,069,771	22,115,827	− 6,953,941	65,104	340
Kiangsu	39,646,924	20,905,171	− 18,741,753	44,500	470
Kiangsi	26,513,889	24,534,118	− 1,979,771	72,176	340
Chekiang........	30,437,974	11,588,692	− 18,849,282	39,150	296
Hupei	28,584,564	33,365,005	+ 4,780,441	70,650	473
Hunan............	20,048,969	21,002,604	+ 953,635	74,320	822
Szechuen........	22,256,964	67,712,897	+ 45,455,933	166,800	406
Kuangtung	21,152,603	29,706,249	+ 8,553,646	79,456	377
		279,389,885			

Provinces.	Census of Year 1842	Population in Year 1879.	Gain and Loss.	English Square Mile.	Population in a Square Mile.
Yünnan	5,823,670	11,721,576	+ 5,897,906	107,969	108
Kueichow	5,679,128	7,669,181	+ 1,990,053	64,554	118
Shensi	10,309,769	8,432,193	− 1,877,576	67,400	126
Kansu	19,512,716	5,411,188	− 14,101,528	86,608	62
Chili	36,879,838	17,937,000	− 18,942,838	58,949	304
		51,171,138			
Anhwei	36,596,988	20,596,988	− 16,000,000	48,461	425
Kuangsi	8,121,327	5,121,327	− 3,000,000	78,250	65
Fukien	25,799,556	25,799,556	....	53,480	482
	413,021,452	382,078,860	− 30,942,592	1,297,999	234

Table of Population of China in each Year of the Reign of Yung-cheng.

[From the *Tung-hwa-lu.*]

Year.	Taxed Population of Full-grown Men.	Increase not Taxed.
1722......................	25,309,178	454,320
'23......................	25,326,370	408,557
'24......................	25,510,115	601,838
'25......................	—	—
'26......................	25,579,675	811,224
'27......................	25,656,110	852,877
'28......................	25,660,980	860,710
'29......................	25,799,639	859,620
'30......................	25,480,498	851,959
'31......................	25,441,456	861,477
'32......................	25,442,664	922,191
'33......................	25,412,289	936,486
'34......................	26,417,932	937,530

Population of China in each Year of the Reign of Tau-kwang.
[From the *Tung-hwa-lu.*]

Year.	Population.	Year.	Population.
1821*	355,540,258	1836	404.901,448
'22	372,457,539	'37	405,923,174
'23	375,193,122	'38	409,038,799
'24	374,601,132	'39†	410,850,639
'25	379,885,340	'40†	412,814,828
'26	—	'41	413,457,311
'27	383,696,095	'42	414,686,994
'28	386,531,513	'43	417,239,097
'29	390,500,650	'44	419,441,336
'30	394,784,681	'45	421,342,730
'31	—	'46‡	421,121,129
'32	397,132,659	'47‡	424,938.900
'33	398,942,316	'48‡	426,737,016
'34	—	'49§	412,986,649
'35	401,767,053		

* Among the years when all the provinces reported are 1821, 1841, 1842, 1843, 1844.

† In 1839, 1840, Hunan and Fukien sent no lists.

‡ The numbers for Fukien had not arrived.

§ The numbers for Kansu, Fukien, Formosa, had not been received.

2. *The Progress of Szechuen.* (No. of 5th August.)

"From the annual official census it appears that the foremost in numbers of all the Chinese provinces is Szechuen, and this is the greatest fact of modern Chinese statistics. The circumstances of the last forty years have been most favourable to the development of this part of China, and it has wonderful natural advantages. Mr. T. T. Cooper, who travelled through it from east to west in 1868, calls it the most fertile of the provinces of China. The merchants of Chungking, its great trading centre, he was told, are the richest to be found in the empire, and the sycee silver bearing the local marks of this city is gladly taken in other parts of the country at a considerable premium on account of its purity. This city is the emporium of all the trade in western China. It is the centre to which all the large traders from the principal marts in Yünnan, Kueichow, and Szechuen are obliged to bring their merchandise, before they can obtain the silver with which to buy foreign goods; the most valuable products of Szechuen, silk, vegetable wax, opium, and sugar, find their way to Chungking, and in return foreign goods are purchased from well-to-do merchants of this city, who hold this trade as a monopoly. In its vicinity the undulating country here rises into low hills, which are cultivated to their summit, and there leaves space which is everywhere carefully tilled. Wheat, barley, rice, beans and peas, the poppy, and the sugar cane diversify the appearance of the landscape and add to the wealth of the farmer.

With these products are mixed rhubarb, madder, and other plants of a medicinal nature.

"The chief city Chêng-tu Fu has very spacious streets and handsome shops. It is built in an oasis which enjoys a bountiful supply of water flowing through it in several broad and nearly parallel streams. These form a net work, being joined each to its neighbours by other branches; the temperature is mild enough to suit well for oranges and pumeloes. The four streams which give its name to the province flow from the north-west, and like all the other rivers of that tract of country, ultimately feed the Yangtze Kiang. To the west of the provincial capital is a vast region of country reaching to the frontier of Tibet. It produces gold, silver, iron, coal, lead. and copper. Here also brick tea is manufactured in large quantities from a tree which grows 15 feet high and has a large and coarse leaf. This sort of tea is much consumed in Tibet, into which country it is conveyed through the important trading centres known as Tachien-lu and Bathang. The population, however, is chiefly collected in eastern Szechuen in such fertile regions as formerly attracted a Chinese population, and received the names of Pa and Shu. Sixteen centuries ago Chêng-tu was made the capital city of Liu-pei, emperor of the Later Han dynasty, and subsequently on more than one occasion the sovereign of this retired, fertile, and populous region took the title of Hwang-ti. It thus became famous as an imperial capital, and its neighbourhood being made very beautiful by Alpine scenery, it quite naturally gave birth to distinguished poets. It has been said of another renowned country,

> 'O, Caledonia, stern and wild;
> Fit nurse for a poetic child.'

The mountainous and picturesque province of Szechuen proved to be a fit nurse for the genius of Sz-ma-siang-ju and Yang-hiung in the Han dynasty, and of Li-tai-pe in the Tang dynasty. These celebrated men gave it a repute in literature which more than made up for the fact that it was a comparatively new country, acquired by colonisation by the Chinese from Tibetan and other tribes. It has the highest mountains, the grandest passes, the wildest looking gorges of any part of China, and interspersed among these sublime features are broad undulating plains of unrivalled productiveness. Protected by high mountains, the temperature is such that tropical fruits grow here in a luxuriant way quite unknown at Hankow and Shanghai, cities in nearly the same latitude. A Chinese poet says of this region: 'Peacocks with their green wings are here seen flying in flocks. The unicorn and the elephant run races with each other. The call of the white pheasant is heard in the morning. At night apes and monkeys chatter in the groves. The fire wells glow in their deep recesses. Flames fly up and spread their coruscations over the whole sky.' This poet had heard that in Szechuen there are elephants and unicorns. Père David, the distinguished zoologist, did not find them, nor do travellers mention them, but large fossil bones have been obtained. His description of the wells of petroleum is interesting. Are not his elephants a poetic license to ornament his verses?

"Two hundred and forty years ago this province underwent an awful scourging. Chang Yün-chung massacred nearly all the inhabitants. The power of the Mings was then reduced to a minimum, and the Manchus were fighting for supremacy. The love of slaughtering men was in this monster an insatiable passion. He put to death 32,000 undergraduates, 27,000 Buddhist priests, 600,000 inhabitants of Chêng-tu, 400,000 wives of his troops, and everybody else in the province. Such is the story as detailed by De Mailla and Baber. Hence it is said that every Szechuen man now in the province is an immigrant or the near descendant of an immigrant. The Emperor Kang-hi was determined to re-people the province, and sent criminals to work there in chains in the deserted fields. During the Mahommedan rebellion in Yünnan, crowds would press in. So also Kansu would, from a similar cause, send a large contingent. There are refugees from the Tai-ping and Nien-fei rebellions everywhere, and most of all in Szechuen. A former viceroy, Lo-ping-chang, aided by favourable circumstances, cut off in 1863 the formidable army of Shih-ta-kai before it crossed the Yangtze and laid waste the smiling plains of his viceroyalty on the north of that river. The streams and mountain chains of this province have combined to protect it from the ruin that has befallen so many other provinces, the disasters of its neighbours having been for forty years the feeders of its prosperity. It is for these reasons that the population, according to the official census, has risen from 22 millions in 1842 to 71 millions in 1885."

3. *The Methods of Chinese Census.* (No. of 19th August.)

"The Chinese empire is based on military conquest, and its institutions have in many respects a military origin. No trouble has been taken to reduce the Chinese code to a severely civil character. It has grown to be what it is by successive additions made to suit the requirements of the hour, and it happens that the census law is among these military regulations thus originated. It is found in the code not as one would expect in the laws of the board of taxation, but in that of military administration. The particular heading is, 'a law for searching out traitors and spies.' The punishment for connecting oneself with foreigners and with the Miau tribes is banishment; the law assumes that everyone ought to have a home, and provides that every one shall be on the register of his home. In every city, town, village, and hamlet it is provided that for every ten families there shall be a tablet or small slip of wood on which are written the names and number of the inhabitants. Ten families make a century or *chia*, and an elder is in charge of these. Ten such elderships make up the field of control of a bailiff, who is called in the law book a *pau chang* or *pau chia*. A registration form is filled up with the name of each householder and the number of individuals in his family. If he goes away from home the fact must be recorded, and when he returns inquiry must be made as to what place he comes from; this also must be recorded. The bailiff is expected to know respecting everyone who is in his district, whether he is at home or not, when he leaves his home on a distant journey, and when he returns. There is a special injunction on every innkeeper to enter in a book the names and occupations of each traveller passing the night in his inn, the amount of his baggage, his followers and draught animals, and the place of his destination. Also all monasteries are to keep a register on a form supplied to them. In it are to be entered the names of monks, Buddhist and Taoist, residing in the monastery, with particulars of arrivals and departures.

"The law of registration is therefore a military regulation against spies, vagabonds, and the like, independent of any census, but the census follows as a regular annual duty of the high officers. The number of inhabitants in every place must by law be reported every year to the board of revenue. Males who are 16 are called *ting*. Boys under 16 are called *kou*. In the year 1711 the enrolment of payers of poll tax that year was made by statute a fixed number for each place. It was in 1713 also decreed that after this the number of taxpayers was not to be increased as the population grew. This favour shown was the precursor of high numbers in the population returns. The people were before this afraid to report the full number of their families. They might have to pay more taxes, and this is always done with great reluctance, but when this decree was promulgated the householder's chief objection was removed. A great difference was made in the feeling of the people towards the Government by this law. For some reason it was apparently not at once carried out to its full extent, for in 1716 it was re-enacted, with explanations, of which for example the following is one: If any family had paid less than it ought under the old law it should, on adding one man of full age to its register, pay the deficit in the annual tax. This being done, another and another might be added to the family without farther liability. The national registration is thus shown to be essentially intertwined with the system of taxes. It has always been so since the Han dynasty. There has in each dynasty been a poll tax, or the poll tax has been commuted into a land tax additional to the proper land tax. Hence it has always been an administrative necessity to keep a register of the tax paying population. Thus at present the poll tax is for Kiang-su province for each person $1\frac{4}{10}$ths candareens as a minimum, to 2 mace as the maximum. The population tax is fixed at 239,546 taels and a fraction, and there is a proportionate charge for the intercalary month. The ordinary land tax is for the same province fixed at 3,116,826 taels, which is fourteen times as great. The population tax amounts then to 1 tael for 80 persons, or for 16 families, reckoning the present population at 20 millions. The land tax amounts to one-seventh of a tael for each person, or three-fourths of a tael for a family. The population tax is commuted in every province for a fixed sum, and the amount for each province was definitely settled early in last century. Being light it is not felt to be so much a grievance as the land tax. Since in official publications the amount of the local census is never dissociated from the statistics of taxation, it is evident that in the official mind the main idea of counting the people is always connected with the revenue, by tradition from the time when it was the rule first to count the people and then to levy taxes in accordance with the knowledge thus acquired.

"There was in the year 1735 an attempt made to initiate a census to be taken independently of the old established registration, but it failed. It was thought at the time that a five-year census would be a good thing, and that the constant increase in population might best be ascertained and dealt with in this way, so that no persons might be overlooked. Every December, it was ordered five years later, each governor should take the lists sent in from all the cities in his province and compile from them on yellow paper a statement in detail of the whole number, to be presented to the emperor in addition to the document sent to the board. The five-year census after brief trial was abandoned, and a return made to an annual census to be placed in the hands of the official historians and have its place in the national records. According to this law, in addition to the number of families and individuals, the quantity of grain in the official storehouses was also to be precisely stated. It was added that the population of districts occupied by aboriginal tribes need not be reported. The Emperor Chien-lung, in finally ordering the statement of population of every province to be sent in annually, and discontinuing the five-year census, expressly states his intention to be to carry out the old rules about registration found in the *Chow-le* before Confucian times. Thus the universal registration of the number of the people still insisted on in modern days rests upon the rules of this old classical book. At the same time this sagacious sovereign expressed his object to be to obtain an accurate knowledge of the wealth of the country and the amount of its population. An overflowing population would be a guarantee to himself and to the people that the Government was wisely and benevolently administered."

IV.—*The Sixth International Congress of Hygiene and Demography.*

The following is taken from the *Times* of 21st October, 1887:—

"In reviewing the results of the recent International Hygienic Congress, which—including the reception at Buda Pesth and subsequent receptions of groups of members in other cities of the empire—has lasted for about three weeks, the fact that seems most palpable is the popularity of the cause that brought the congress together. The manifold shortcomings, the impracticable, unwieldy character of many among the resolutions, the obvious platitudes that too often stood in stead of useful speeches, are covered as with a broad mantle by the circumstance that some 2,500 persons, for the most part doctors, were enrolled as members of the congress.

Never has such a gathering for such a cause been seen. The immense majority, of course, were Austrians and Germans; and neither the one nor the other seemed to know how to make the best use of strength which their presence represented. For Englishmen, who during many generations have been accustomed to guide the hand of Government by systematically organising the expression of public opinion, it is easy to criticise such a congress. Due allowance, however, must be made for the manifest inexperience of the majority of the members. The organisers seem to have devoted themselves chiefly to gathering as many supporters together as possible, to entertaining them with lavish hospitality, and to securing a number of interesting communications from distinguished men of science. There was no attempt to obtain imposing votes on particular points, so as to exercise direct moral pressure on the Governments of Europe. What was done in this direction was merely the result of circumstances without any preconception or organisation. No one knew that any special resolution would be submitted on any given question, and it was impossible to prepare beforehand either an attack or a defence. The congress was altogether innocent of any wire-pulling, and never experienced the mysterious manœuvring of a party whip.

"The papers submitted to the congress and printed some weeks in advance were interesting, instructive, and thoroughly international. Those that were written in German or English had their chief arguments or conclusions translated into French. But in the discussions that followed upon these papers, the speeches were nearly all in German. In many instances no effort whatsoever was made to translate them into French. The majority of foreign delegates present could not understand German, and consequently abandoned the meetings, preferring to visit the various interesting institutions of Vienna. This was particularly the case in the First and Second Sections. The votes also were decided by the majority present, and the German and Austrian were often as 20 to 1 in proportion to all other nationalities. If these congresses are to show us from time to time how opinions have developed themselves with regard to the great problems involved in the preservation of public health, then a mere local majority ought not to be allowed to rule. The most practical means of preventing this would be to give each nationality present the right to one vote. If the delegates of a particular nation were not agreed among themselves, then the majority could decide what the national vote should be. In this way the progress of national opinion could be revealed in a very instructive manner—as, for instance, with Italy as regards the quarantine question. At the Congress of the Hague the Italians were altogether in favour of quarantine, but at the Vienna Congress they were almost unanimously against it. It is likewise most desirable to re-establish French as the official language of congresses. At Vienna there was a determination, not altogether exempt from political feeling, to impose the use of German. The French delegates, though too weak in numbers to resist, expressed unbounded gratitude to an Englishman—Mr. Adolphe Smith—who delivered his speeches in their language; this return to the official tongue of former congresses being interpreted as a protest against the Germanisation of scientific effort. It cannot be said, however, that the French showed themselves particularly amiable with their foreign colleagues. There seemed a *parti pris* among them to consider themselves ill-used, and a regrettable tendency to catch at opportunities for making political demonstrations. Thus in Buda Pesth an entirely uncalled for scene of Franco-Hungarian hysterics was provoked by the playing of the 'Marseillaise' at a public banquet, and the next day the French delegates thought it seemly to go and embarrass the Burgomaster of Buda Pesth by offering him their thanks 'for the sympathies expressed towards the French nation.' At the five previous congresses national rivalry leading to childish displays of this description had never made itself felt, the nearest approach to it having been a little sparring between the disciples of Dr. Koch and M. Pasteur. Had French been previously selected as the official language and frankly accepted—not as a token of sympathy for French Chauvinists, but simply because it is the language most generally understood among educated people of all countries—the injurious and unbecoming friction which occurred at the last congress would probably have been avoided.

" Concerning the details of work done by the congress, it must be confessed that very startling principles were accepted with somewhat careless indifference as to the consequences, political and economical, of their practical application. For example, it was very generally recognised that a street running from north to south should be twice as broad as the houses are high; while a street going from east to west must be four times the width as compared to the height of the houses. This was alleged to be necessary, in temperate climates, to insure that each wall shall receive, during the course of the day, the direct rays of the sunlight. Otherwise, the hygienists acknowledge the wall must rot and harbour the germs of disease. M. E. Trélat, who read the paper on this subject, certainly did make a practical suggestion when he urged that, though large streets should pierce through crowded cities, it was not necessary to destroy the houses and abolish the small narrow streets in the intervening space. Sufficient sunlight could be procured by simply decapitating the taller buildings, thus preserving the lower and more valuable floors. Even more practical, and certainly less expensive, was his protest against window curtains. To obtain sufficient light within a room, a high window renders far more service than a broad window; but what is the use of a high window if the upper portion is covered over with drapery. If, at the risk of reducing the solidity and warmth of our dwelling, we pierce a hole in the wall so as to obtain light and air, we are acting in harmony with the laws of hygiene. It is scarcely consistent, however, to at once cover over this opening with drapery; but if drapery we must have, then let the curtains be drawn well back from the top of the window and gathered together in the lower part where less light and a feebler light enters. In this discussion as to what was necessary to render dwellings thoroughly wholesome, the right of the State to expropriate and rebuild was never once challenged, and the same absolute submission to the State was shown in the course of the debate on factory legislation.

"The need of more extensive factory inspection and sanitary control was unanimously recognised; and, to prevent competition interfering with the application of the laws of health, legislation of different nations on such matters should be, it was contended, as far as possible assimilated. On all hands it was admitted that the working hours were much too long, and that the law should protect men as well as women and children. The congress voted in favour of an International Ten Hours' Bill, and a motion to fix the normal day's work at eight hours was only defeated by a small majority. While an army of hygienists is to be despatched to inspect and control factories, another equally numerous body of specialists must be sent to visit all schools and also to teach elementary hygiene to all the pupils. The resolution to this effect comprised seven paragraphs, though its meaning could have been summed up in one sentence—namely, that doctors with knowledge of hygiene should inspect schools and form part of the controlling authority. But in this little or no notice seems to have been taken of the all-important fact that these sanitary inspectors and teachers only exist in the imagination of the congress. With wearying persistency speaker after speaker repeated the platitude that for special work special men must be selected. No one pointed out where these special men were to be found, or how the special knowledge was to be imparted. With a complacency that may be natural, but is not justifiable, the congress seemed to think that it had solved the difficulty by insisting on the appointment of physicians for the performance of every conceivable duty. But, for the inspection of a school, the first necessity is a person possessed of practical experience that will enable him at once to detect a syphon that is blocked, a waste-pipe that is not trapped, a wall that is not of the regulation thickness, a roof that is insecure, a floor that permits the passage of dampness, and, above all, a drain that leaks. At present, however, an appalling proportion of continental doctors have no notion of what a trap may be, and themselves live in houses utterly devoid of any contrivance whatever to prevent the ingress of sewer gas. In England medical men have a better theoretical knowledge of the subject; but it is only those who have made a speciality of such matters who are capable of detecting defects which, in theory, they know ought not to exist. The very essential question of house drainage was not discussed at all during the congress, though the better part of a morning was devoted to a debate on public sewers. The rival merits of the ordinary water-carriage sewers, of the separate or Waring system, and the hydro-pneumatic Shone systems were explained. The latter method was evidently quite unknown to the majority of the members present. Nor had all the members of the congress realised that sewage must be treated according to hydraulic laws, will not flow unless it have a sufficient fall, and that, as a rule, the topography of a town does not provide the required inclination. Some artificial means of creating a fall is necessary; and, for this purpose, the Shone system had been employed in the House of Commons, at Eastbourne, Southampton, Henley-on-Thames, &c., and was found to be cheaper than lifting by steam pumps. But, with some exceptions, the members of the congress were not capable of discussing the technicalities of drainage, and the only opinion that could be elicited was a general condemnation of cesspools.

"When the preponderating number of Austrian members at the congress is taken into consideration, the absence of such technical knowledge is not surprising. At the University itself, where the congress held its sittings in splendid rooms replete with golden and artistic decorations, there is no place allotted for the teaching of hygiene. What little hygiene is taught is imparted in an old building which was formerly a rifle manufactory, and the old dotation for such teaching is only 700fl. per annum—barely 56*l*. Dr. Berthold Beer, in a leading Vienna medical paper, points out that while the taxation of Austria is equal to 1fl. per head for police and justice, to 4·80fl. for the army, and to 5·50fl. for the national debt, it only amounts to 0·04fl. for sanitation. Nor can it be said that these paltry four kreutzers are spent for such purposes as were advocated by the congress. In the Austrian budget for 1887 965,142fl. are inscribed for sanitary expenses, but out of this sum 372,989fl. go to pay the gendarmes and others who watch the frontier to prevent the importation of diseased cattle from Russia and elsewhere. This, incidentally, is a strong argument in favour of the international assimilation of sanitary legislation, for here it will be found that Austria spends a third of the sum it devotes to hygiene in seeking to counteract the neglect of neighbouring States. If but little is spent in Austria on sanitation, it cannot be said that the subject is too novel to enter the domain of practical politics. Exactly a hundred years ago, in 1787, the celebrated Austrian physician, Johann Peter Frank, organised at Pavia, which was then an Austrian university town, the teaching of hygiene to all medical students. This formed part of the curriculum for the third year, and in the fifth year the pupils were to learn sanitary administration and sanitary laws. In his celebrated work on *The System of Medical Police*, Professor Frank, though writing a century ago, brought forward identically the same subjects as were discussed at the present congress. He wrote eloquently against the burden of armies as the cause of poverty and disease; he was opposed to the overworking of young people; he maintained that cattle disease could be cured by the isolation of sick beasts; that persons suffering from infectious diseases should be treated in hospitals outside towns; that private drains should be so arranged as not to create a public nuisance; and he advocated that the sale of quack medicines should be prohibited. There is no lack of modern illustrations to prove the truth of Professor Frank's old teaching. The advantage and ultimate economy realised by the expenditure of public moneys on sanitary improvements has been demonstrated by the introduction of the new water supply into Vienna. In 1872 there were 635 deaths in this city from typhoid fever, and in 1873 the number rose to 649. Then came the new water supply, with an immediate reduction of the deaths from typhoid to 314. But of course the full benefits were not felt at once.

The deaths from this disease during the last three years were only 69, 80, and 61 respectively. As regards the further stoppage of infection from smallpox as well as typhoid by treating patients in country hospitals and in small wards of four to six patients, and also by cremating the bodies of persons dying from these diseases, the forcible arguments of Sir Douglas Galton and Sir Spencer Wells met with general approval. It may, indeed, be said that through the impulse given to it by the two distinguished British delegates the subject of cremation has made a distinct move forward.

"Dr. Louis Czatary, the delegate of the Hungarian Government, touched a question of universal interest by his powerful onslaught on the railway, tramcar, and omnibus companies. He protested against the long hours and excessive work which most of these companies inflicted on their servants, and traced many accidents which occasioned a frightful loss of human life to these bad causes. 'The pointsman, the engine-driver, the tramcar conductor,' he said, 'are often absolutely besotted from exhaustion, and among the other bad results produced by overworking these men and allowing them insufficient time for sleep and meals is that they are driven to take stimulants, which break down their health and shorten their lives, thereby mostly leaving their widows and orphans to be a burden on public charity.' As regards the overcrowding of third-class railway carriages and tramcars, Dr. Czatary remarked, 'if a first-class carriage was thought to be only large enough to seat six persons comfortably, why should a third-class carriage of equal or sometimes smaller dimensions be made to hold ten? The breath of a poor man gives off as much carbonic acid gas as that of a rich man, and the atmosphere which is breathed during a long winter journey in a crowded third-class railway carriage is absolutely poisonous.' Another topic of universal interest was the preventive inoculation against rabies. Although the congress would not pledge itself to a decisive vote in favour of M. Pasteur's system, yet much very cogent evidence was adduced in support of it.

"Dr. Ullmann, assistant of Professor Albert, of Vienna, reported that he had during the last year treated 122 persons bitten by rabid animals with preventive inoculations. In all these cases the rabid condition of the animals which had inflicted the bites was proved by *post mortem* examinations or by experiments. Only three persons died; and this is equal to a mortality of 2·4 per cent. The mortality among persons bitten by mad dogs, &c., is estimated variously at 5 to 30 per cent. In many other cases the value of the Pasteur treatment was very forcibly established. For instance, in a Polish town five persons were bitten by a mad dog. Three out of the number were subjected to preventive inoculations at Vienna, and remain in the enjoyment of full health; but the other two, who were not thus treated, died a few weeks later from hydrophobia. Dr. Ullmann also made experiments by treating animals with simple cauterization, and found that this was not an effective method. Dr. Bordoni, of Turin, by similar investigations with animals proved the truth of the Pasteurian theory. Further, he had under his care 119 persons all bitten by mad dogs, and only three of them died from hydrophobia. Professor Metschaniteoff, of Odessa, gave statistical tables setting forth the results obtained with Pasteur's method at Odessa. Here no less than 713 persons bitten by mad dogs and wolves were inoculated. The intensive method, which implies the use of the strongest virus, for preventive inoculations was applied with the greatest success. The mortality was only equal to 2·9 per cent. Experiments made on 1,500 animals added further testimony to the value of M. Pasteur's discovery, which the learned Professor maintained would mark a great epoch in the annals of science.

"'Prevention before cure,' was the watchword of the last congress; and the discussions on cholera have undoubtedly convinced the leading etiologists of Europe that there is a need for more exact information as to the circumstances under which cholera is spread. Numerically there was a balance at the meetings in favour of maintaining quarantine as a preventive, but this is one of the cases in which it may well be said that votes should be weighed and not counted. Many of the Austrian and German doctors who voted for quarantine held official positions, and seemed to think they might embarrass their respective Governments by attacking a time-honoured institution, especially as the alternative of local sanitary improvements would imply a large demand for imperial and municipal expenditure. On the whole, however, the advocates of local improvements won a moral victory, and would have scored an actual majority if the vote had been taken by nations. The excellent speeches of Professor Pottenkofer and Mr. Shirley Murphy, and the evidence adduced by Italian investigators contributed to this result, for on the other side no serious refutation was attempted. Out of nine resolutions adopted at the last meeting, amid considerable excitement, the majority aimed at the exclusion of cholera from Europe by the isolation of the sick and the carrying out of disinfection. It was further accepted in principle that the enforcement of regulations for these purposes was the concern of all Europe, and a proposal was voted for the establishment in the Suez Canal of sanitary supervision by an international council, having the right to impose the measures necessary for the security of Europe. It was also resolved that there ought to be established in the centre of Europe a station to which all nations should communicate information as to the existence of cholera, yellow fever, and plague, with the view to such information being at once circulated through other States. A motion by Mr. Shirley Murphy, the exponent of English ideas—which was not carried—embodied the principle that the detention of persons in health by giving a false sense of security militated against the adoption of the measures, which were in reality of the first importance. Until there is a better agreement among nations as to first principles, the framing of international regulations will be almost impossible. There was a general demand at the congress for international action, but the preponderance of opinion over exact knowledge was manifest even in such a matter as the regulating of the rag trade. Inquiries instituted in England by Professor Corfield, in Holland by

Drs. Rumjoch and Monton, in France by Dr. Vallin, and in Germany by Dr. Finkelberg, led to the same conclusions as those contained in Dr. Parsons's report to the Local Government Board—namely, that infection was very often conveyed from country to country by rags. Cases were cited in which lint charitably sent to ambulances in war time had been made of linen worn by persons who had died of infectious diseases. Resolutions in favour of regulating the rag trade were passed; but the usual want of practical information showed itself in sweeping proposals to prohibit all imports of rags from infected countries, and also in diversities of views as to the best means of disinfecting. This subject, like all those which touch the interests of shipping, is a large one, and not to be disposed of by the offhand votes of continental doctors, who, for the most part, know very little about maritime commerce. The English delegates exhibited the prudence that was to be expected in the framing of their resolutions, and generally preferred simple remedies immediately feasible to large abstract proposals. It is much to be regretted, however, that no official delegate of the British Government was appointed, for though men like Sir Spencer Wells, Sir Douglas Galton, and others came with a high prestige, and spoke with great authority, the absence of an English official delegate was taken to mean that the British Government took no interest in the work of the hygienists. The discussions on Indian cholera ought certainly to have been watched by a delegate commissioned to make a report to our Government. While England must naturally object to a control over her shipping by international interference, she will be exposed to considerable risk of pressure from Europe if she neglects applying to India—the permanent hot-bed of cholera—the measures which she has found of service at home. This was well emphasised by Sir Douglas Galton, and the congress was of one mind in approving his opinion."

V.—*The Abuse of Statistics.*

THE following article by M. de Foville is extracted from the *Journal of the Statistical Society of Paris* for October. In connection with it, readers may be referred to a correspondence on Australian statistics which appeared in this *Journal* for March, 1883, p. 128:—

"In that amusing farce, Gondinet's Homard, the hero Maître Montacabère, after a series of amusing adventures, expresses himself as follows regarding the medical profession, of which he had obtained his experience for the first time: 'What a profession—what an extremely pleasant profession—and so wonderfully simple.'

"What Montacabère said of medicine, the reckless writer who forms the subject of this article must frequently have said of statistics, a science which he practises much in the same manner as Montacabère did that of medicine.

"I have not the honour of a personal acquaintance with Mr. Michael Mulhall—I really do not know if he is fair or dark, young or old; but I should imagine him to be an amiable sceptic—free from all illusions, and occasionally inclined when gazing at his reflection in a looking glass to indulge in an ironical smile, such as we read the ancient augurs were wont to do.

"Mr. Mulhall is immensely prolific, and his works are very extensively read, or to say the least, widely quoted. Journalists, statesmen, professors even, willingly run through his pages, and particularly those of his later works. In his former publications Mr. Mulhall confined his attention exclusively to South America—*The English in South America*, *Handbook to the River Plate Republic*, *Handbook of Brazil*, *&c.*, are among his earlier works. He soon, however, commenced to feel himself uncomfortably fettered in this distant continent, containing only 4,396 million acres of land, and for the last ten years all the productions which he has given to the world have had for their common object, universal statistics. He compares in them from all possible points of view every part of the world, known and unknown, and it may be perfectly relied upon that when he commences a calculation, he will refer to every quarter of the globe. He even occasionally explores the depths of the infinite, and has doubtless taken note for future guidance of the 46,000 million stars contained in the heavens.

"Mr. Mulhall published in 1880, *The Progress of the World since the beginning of the Nineteenth Century;* in 1882, the *Balance Sheet of the World;* in 1884, the *Dictionary of Statistics;* and in 1885, the *History of Prices since the Year* 1850. His choice of titles is a singularly happy one, and all these little volumes look extremely well in a library, particularly the first of the four. It is bound in blue, and judging from the exterior, is a very attractive volume, bearing on the cover the representation of a sun—*Solem quis dicere falsum audeat?* The rays of the sun are entitled, Art, Agriculture, Steam, Industry, Railways, Electricity, Commerce, Wealth, Public Instruction, and the Press. Mr. Mulhall's later publications are not so elaborately illustrated on the covers, but this is compensated by the letter press, which is accompanied by numerous blocks. His *History of Prices* has to delight the eye eight diagrams coloured in blue and buff. In one portion of this work we find weights prettily represented in buff colour which are intended to show the proportion of taxes in various States to earnings; on the same page we find squares of light blue which are intended to represent the ratio of debt to national wealth in the principal countries of Europe and in the United States. Farther on we come to little vessels sailing over the water, those coloured buff represent at different periods the total tonnage of the mercantile navies of the world, while those coloured blue represent at the same periods the special tonnage of the English mercantile navy. The masters of graphic statistics might possibly take some exception to these diagrams, and would certainly find many anomalies in them. For instance, sailing vessels are represented by steam ships, and the 78 million of tons attributed to the British flag occupy more space than the 152 million of tons which is estimated to be the burthen of all the existing mercantile navies, English and foreign. But the sea has its mirages, and patriotism also perhaps. There is even greater variety in the plates inserted in the *Dictionary of Statistics.* At the word *Army* we find quite a battery of little guns delicately coloured in pale pink and green; at the word *Cattle* a herd of oxen, green or pink; at the word *Houses* quite a street of little buildings again coloured in green and pink; at the word *Railways* a train of coaches, green and pink. These variegated landscapes certainly have the effect of considerably enlivening a volume of statistics, but if we carried the principle a little farther we might represent all statistics by pictures, even those relating to demography. For example, the births might be represented by cradles, the marriages by bouquets and wreaths of orange blossom, and the deaths by coffins.

"Putting on one side the question of the titles, binding and illustrations, the last four works of Mr. Mulhall bear a singular resemblance to one another. It is very much the same thing with his tables as with the pictures that one sees exhibited in various picture galleries—at a given moment their position is changed, those that were originally on the line are removed to the level of the ceiling, and *vice versâ.* Mr. Mulhall excels in this system of permutation, and it is really marvellous to observe how many different shapes (and most of them singularly happy ones) he manages to give to his collection. The misfortune is that amongst the 50,000 or 100,000 figures that he turns about so skilfully from one volume to another, there is an enormous number absolutely incorrect, and this is more particularly noticeable when he devotes his attention to statistics relating to France. Some figures certainly are to be found here and there which are correct, but it is the exception which confirms the rule. And again, most of the numerical data arranged by the author are most indefinite and refer to no particular period, which is alone sufficient to divest them of any scientific value. Then when he attempts to be precise it is not much better, for precision without accuracy is nothing but a snare, and here the errors absolutely swarm.

"It may perhaps be urged that I am exaggerating; but it is not so—or if I am, it is only to a very trifling extent. Moreover, it is perfectly easy for any one conversant with statistics to satisfy himself of the truth of my statements. Take a figure, and to make absolutely certain, take one the accuracy of which you are sure; then refer to Mulhall, and you will speedily find what you want, for the internal arrangement of his work is excellent. But unfortunately when you have discovered what you have been looking for, you will find in at least five cases out of ten that the information he gives you is misleading. Refer to him for the number of landlords, or of lunatics in France; ask him how many houses or hackney carriages there are in Paris; interrogate him upon the question of agricultural or industrial production; on the navy, commerce, savings banks, or finances, and he has an answer to all;

but in a vast number of cases the numbers given appear to be purely imaginary.

"Rossini, speaking of one of Wagner's scores, once said that it would be greatly improved by being played the wrong way, commencing from the end; there is more than one set of figures in Mulhall's works which would certainly lose nothing by being read backwards.

"The same tendency to improvisation is found in those portions of his works relating to the various budgets; and this is the more extraordinary, as the figures are periodically supplied in the official publications, and only require to be copied out. The following is an example of some of Mr. Mulhall's extraordinary flights of imagination. The consumption of salt in France is a little over 300 millions of kilogrammes, and the revenue derived from it at 10 centimes the kilogramme amounts to a little over 30 millions of francs. Mr. Mulhall gives the consumption at 800,000 English tons, that is more than 800 millions of kilogrammes, taking the English ton to be equivalent to 1,016 kilogrammes, and reduces the revenue to 16 millions of francs, an error in both cases of more than 100 per cent.!

"To take another and a simpler case—the number of dogs taxed. This is shown each year in the returns published by the Minister of Finance, and according to the latest official data, there were not less than 2,775,400 dogs contributing their quota to the communal exchequers. Mr. Mulhall, however, only accounts for 1,864,000, and ignores the existence of about 1 million of these useful animals.

"When on the very firmest ground one is liable to such slips as this, it is the height of recklessness to deviate in the slightest degree from the beaten track. Mr. Mulhall, however, is not the man to hesitate in face of any difficulty, the most intricate problems appear to be those which embarrass him the least. It is by no means an easy task to set oneself to endeavour to estimate the wealth of a particular country, and many statisticians in England, France, Germany, Austria, and Italy have laboured at it without arriving at any absolutely satisfactory result. Why then instead of thus labouring in vain, did we not address ourselves to Mr. Mulhall? There is not a country from the north to the south pole, whose wealth, capital, and income, he is not able to estimate within a few thousands, dealing separately with landed property, cattle, railways, public works, houses, furniture, merchandise, bullion, shipping, &c. If the moon were inhabited, Mr. Mulhall would probably know better than the inhabitants themselves, what they were worth.

"Happy man! Victor Hugo, who certainly did not err on the side of modesty, once despairingly said—

> 'Je voudrais bien savoir les choses que j'ignore.'

Mr. Mulhall is free from this anxiety—the things which the generality of persons are ignorant of, appear to be those which he finds it most easy to teach—and with this vast store of knowledge he is extremely condescending. His statistical scales are as accommodating as those steam hammers, which at the will of the engineer are capable of crushing a mass of red hot iron, or of cracking a nut—Mr. Mulhall after having weighed the earth or the sun, is perfectly willing, if requested, to weigh a mouse, a fly, or a gnat. With the same pen that he puts life and death, peace and war, the social question, &c., into equations, he tells us the weights of the clocks of Notre Dame, the number of camels that Job possessed, and the quantity of swallows' nests annually consumed by the Chinese mandarins. He tells us what is the price of cats in the Brazils, of tulips at Amsterdam, and of a bottle of Tokay from the cellars of Prince Woronzoff. He condescends to inform us that Seneca the philosopher enjoyed a fortune of 3,400,000*l.*, that Lambert at 40 years of age weighed 739 lbs., and that Madame Frescobaldi never gave birth to less than three children at a time!

"In matters of this description an error more or less is not of vital importance, but some of Mr. Mulhall's inaccuracies are not so harmless, as the English House of Commons has recently discovered. On the occasion of Her Majesty's Jubilee, a number of newspapers on both sides of the channel published so called statistics of the evictions in Ireland since the commencement of the reign—and this number was stated to amount to 3,668,000. I may take this opportunity of observing that I am not one of those who minimise the sufferings of the Irish people, but this startling total appeared to me so extraordinary, so improbable, so disproportionate, that I began to ask myself whether Mr. Mulhall's calculating machine had not had something to do with it. As a matter of fact Mr. Mulhall was the author of this monstrous statement, and the Secretary of State for Ireland, in a speech delivered in the House of Commons, said with reference to it:—

"'I was astounded at those figures; they were such as I think nobody the least acquainted with Irish statistics would have known to be correct. I have examined this point, and will the House believe me when I say that in these figures Mr. Mulhall's method of proceeding had been this: He has taken the Government return, which gave him in two columns the number of families and the number of persons evicted. He has deliberately selected the column containing the number of persons; he has treated that column as if it consisted of families, and he has chosen to assume that the Irish family consists of seven persons, and he has multiplied the number of evictions by seven in consequence.'

"So much for the value of those figures which went the round of the press, those figures which Mr. Gladstone felt safe in appropriating, so certain did their author appear to be of his facts.

"It was this last example of flagrant inaccuracy that decided me to state frankly what I think of Mr. Mulhall's work. It is only fair that the public should know, both in France and in England, what value is to be attached to his productions. The author of the *Dictionary of Statistics* and the *History of Prices*, is undoubtedly an ingenious man, and particularly skilful in his *mise en scène*, but he most assuredly abuses the right that everyone enjoys of occasionally making mistakes. Everyone is liable to error—true statisticians unfortunately are no more infallible than true doctors, and there are times when we are all obliged to cry *meâ culpâ.* But there are errors and errors, and it appears to me that statisticians who love and respect the science, owe it to themselves to separate their cause from that of the Montacabère who takes such unwarrantable liberties with it."

VI.—*Agricultural Returns for* 1887.

The following are the principal portions of the memorandum called "Summarised Results of the Agricultural Returns for 1887," prefixed to the last returns issued by the Agricultural Department of the Privy Council:—

"The annexed tables contain the information, usually comprised in the Agricultural Returns of Great Britain, for the year 1887, with summary returns for Ireland for the same year. The details for Great Britain have been collected as in previous years by officers of the Inland Revenue Department, while those for Ireland have been supplied to the Agricultural Department by the Registrar-General for Ireland. The particulars for the Isle of Man and the Channel Islands, which are included in the general totals, have been collected by officers under the direction of the respective governors of those districts. The date for which the returns in Great Britain, the Isle of Man, and the Channel Islands, were directed to be obtained was, as in the preceding year, the 4th of June, and a summary, subject as usual to corrections in the completed returns, was issued to the London newspapers on the 17th of August.

"In Great Britain the number of separate returns furnished by occupiers of land, and of those obtained by estimates where the occupiers omitted to make returns, has been this year 563,119; of these 420,822 were in England, 61,006 in Wales, and 81,291 in Scotland; and there were altogether 4,711 from owners of live stock only, thus showing an increase of 3,545 in the case of occupiers of land, and a decrease of 225 owners of stock. The increased number of occupiers is in several counties again ascribed chiefly to the subdivision of land, some of which has been newly reclaimed. The consolidation of small holdings with larger ones owing to changes of occupancy from agricultural depression, and farms which remain unlet and are now returned by their owners, together with the land in their occupation, have, however, reduced the number in other districts. There are also the instances annually occurring, for which allowance must be made as heretofore, of returns made by occupiers of more than one holding, and who furnish the required particulars either on one schedule or separately for each holding, as may be convenient to them.

"In respect to the number of occupiers for whom recourse was had to estimates, the returns so obtained show a decrease of 136 only, the total number being this year 19,852, as compared with 19,988 in 1886.

"The acreage estimated amounts this year to 1,619,776 acres, as compared with 1,665,876 in 1886, a decrease of 46,100 acres. The advantage of dispensing with these estimates has been frequently pointed out, and is so obvious that it was hoped the necessity for them would disappear more rapidly than it appears to do. If, as has been suggested, chambers of agriculture and other such associations, as well as the press of the country interested in agricultural matters, were to urge this point upon the attention of farmers, it might, perhaps, induce more of them to render the information required, and thus lead to a nearer approach to accuracy in the aggregate results.

"It will be remembered that a special return was last year issued in a Parliamentary Paper [C–4848] 1886, with reference to certain classes of agricultural holdings and allotments detached from and attached to cottages which were held by labourers and working men in each county in Great Britain, and that the tables referring to allotments, and a few others showing summaries and certain details, were included among the agricultural returns of that year.

"In accordance with the suggestion of Sir John Dorington, these allotment returns were supplemented by a further return, giving similar information for the same year, in regard to each union or parish, &c., in England and Wales, and for each parish and county in Scotland. The particulars referred to were issued early in the present year in Parliamentary Paper [C–4974] 1887.

" A special return (Table No. XI) of unoccupied arable farms in England and Wales, or of parts of farms of not less than five acres unoccupied or not in cultivation, has been this year obtained as in 1881, in pursuance of a promise made by the Chancellor of the Duchy of Lancaster in reply to a question by Mr. Barclay in the House of Commons on the 18th of February last.

" The broad fact shown in the return for 1887 of a diminution of 18,533 acres, as compared with that obtained in 1881, in uncultivated land in England and Wales, appears at first glance irreconcilable with the undoubtedly intensified depression in agriculture which is generally believed to exist at present in a more acute form than has been known within recent years. There is, perhaps, a slight tendency to exaggerate the extent of land out of cultivation, but, assuming that the principle of including only such land as was actually uncultivated was closely adhered to in 1881, and as carefully considered by the returning officers of that date as it has been this year, the facts remain, and the solution must be looked for in the circumstances attending each of the two periods in question. The replies to a memorandum addressed to the collectors, calling their attention to the results shown, and requesting that the accuracy of their returns of 1887 might be further investigated, appear to leave no doubt on this point, for in those counties where the acreage of unoccupied land now shown is less than in 1881, the figures given in 1887 have, so far as it was possible to test them, been found correct, while there appears to be no reason to suppose that those of 1881 were otherwise. It is suggested in the explanations of some of the officers that in 1881 the existing depression in the farming industry was less felt, and that landlords had not then resolved upon reducing rents or taking farms into their own hands for cultivation, notwithstanding the number of holdings which had become vacant immediately prior to the date of the return in 1881; and that many such farms were for a time allowed to run waste owing to owners being reluctant, probably from regarding the depression as temporary merely, to re-let them at reduced rentals, and unwilling themselves to occupy and cultivate them. Owners of land are now, it is mentioned, either partially or completely cultivating land which is at present untenanted, or they have felt compelled to make very material reductions in rents, and, as a consequence of these altered conditions, the quantity of unoccupied land, which in very many cases has been re-let at a merely nominal rental, or sometimes on payment of the tithes only, has actually decreased.

" Furthermore, it is explained in one of the collections composed of parts of several adjacent counties that heavy, cold, and retentive clay soils, which during a series of wet seasons could not be remuneratively cultivated, and were allowed to go out of cultivation, have become covered with such grasses as grow spontaneously, the land so covered being frequently let for rough grazing purposes at from 3*s.* to 4*s.* per acre; while the recent drier seasons have afforded opportunity of bringing smaller portions, under reduced rents, more or less into cultivation. If this be the case to any considerable extent, the present state of things as shown in the return, instead of being inconsistent with the distress so often asserted, would really appear in some degree to confirm it, the land now let at the low price quoted having been worth 20*s.* to 40*s.* per acre in more prosperous times.

" During what may be termed its transition state, it is remarked that it was often a debated point as to whether the land should be returned as bare fallow or permanent pasture; it has gradually taken its place under the latter description.

" Without attaching undue weight to these explanations, which are here given for what they are worth, it seems likely that the causes specified have helped to modify the position as compared with that of 1881. It is also to be observed that the grass land, much of which is frequently let for grazing for the season, is, in relative proportion to the total cultivated acreage, now very much larger than it was in 1881; while of arable land thus diminished the proportion under fallow in England and Wales together is now only 3·55 per cent. of such land as compared with 5·55 per cent. of that returned in 1881. It would therefore appear not improbable that smaller quantities of arable land should be found to be now wholly out of cultivation.

" There are also included (Table No. X) among the returns of the present year, in reply to the desire expressed by Mr. Jasper More in the House of Commons on the 10th day of February last, particulars showing the quantity of land rented and owned in each county of England, Wales, and Scotland, with the exception of certain parts of the counties of Norfolk, Suffolk, and Lincoln (forming one of the collections of the Inland Revenue Department), in which it is stated by the officer that the information asked for as to ownership of land occupied was refused by a very large proportion of the occupiers under the false impression that it would be used for the purposes of taxation, and that all assurances to the contrary which were made to them were disregarded. It is to be regretted that, owing to these refusals, it has not been practicable fully to complete the return which has been obtained in respect to all other counties.

"Of the total quantity of 32,665,314 acres, shown in Table X, as the extent of land rented or owned in Great Britain in 1887, 27,538,489 acres were returned as rented, and 4,834,430 acres were returned as being owned by the persons to whom the schedules were forwarded, leaving thus 292,395 acres in the three counties before mentioned for which the information required was not obtained.

"It should be explained with reference to the difference here shown between the total cultivated acreage in Table I and the extent of 32,665,314 acres above referred to, that the latter number includes the acreage of nursery grounds; of certain quantities of land under culture of small fruit not shown in Table I; and also 19,056 acres, viz., 5,535 acres in Kent, and 13,521 acres in Sussex, returned as land rented or owned, the figures given in both these counties being in excess of the total of the separate crops in Tables II and VII.

"The difference in Kent has, on inquiry, been found to be chiefly owing to omissions in regard to acreage returned under orchards and market gardens.

"In Sussex the collector explains that in many instances the gross acreage of the farms was given, while in others the total acreage of the separate crops only was included.

"In all other counties the aggregate of the separate crops appears to have been entered as the full extent of land rented or owned, without any important differences being shown.

"In the Isle of Man the discrepancy between the total quantity of land rented or owned and the sum of the separate crops is stated to have arisen from the inclusion of mountain land, &c., in the total, which is not otherwise returned upon the schedules.

"For Guernsey, land occupied by farmhouses and buildings and other quantities covered by greenhouses, &c., and in fact all land under occupation, whether cultivated or not, appears to have been included; while in Jersey the discrepancy is said to be due to the erroneous addition of second crops grown on the same land.

"The following appear to be the general results of the returns which have been obtained for Great Britain:—

"The area returned in 1887 as under cultivation of all kinds of crops, bare fallow, and grass, exclusive of heath and mountain pasture land and of woods and plantations amounts to 32,615,000 acres, shown in Table I as hitherto. These figures do not, however, include an addition of some 18,000 acres in Table XII to be presently referred to, the major portion of this last mentioned acreage belonging to particulars which have not previously been furnished in these returns. Comparing therefore the 32,615,000 acres shown in Table I with the returns of the previous year, we find an increase in land under cultivation of about 24,000 acres, the respective additions in each division being about 6,800 acres for England, 8,700 acres for Wales, and over 8,500 acres for Scotland.

"It will be observed that the addition to the cultivated acreage of England is this year very considerably less than has been usual, and the explanation of the abatement in increase is probably to be found in the fact that agricultural distress and prospects appear to interfere materially with bringing additional land under cultivation.

"It has been ascertained however that portions more or less considerable of the land which is this year included in the special return as to unoccupied land in England and Wales was, in some districts, in cases where it had been accidentally estimated in 1886, owing to the non-receipt of the occupier's schedules, inserted by several collectors in the returns of that year pertaining to cultivated acreage, although the land in question was possibly last year also unoccupied. To such extent as this actually occurred, it necessarily only apparently increased the acreage of land then shown as under cultivation. This the special return referred to, in directing attention to the source of error, has now been the means of correcting, and, in the present year therefore of diminishing the further addition to the acreage under cultivation which otherwise might have been shown.

"Notwithstanding this depression in agriculture so frequently noticed in the reports of collecting officers, there are in certain localities, such as parts of the counties of Cornwall, Devon, Durham, Lancaster, and the North Riding of Yorkshire in England, and others in Wales and Scotland, several instances of land newly reclaimed and brought under cultivation since last year. These additions do not here again seem quite consistent with the fact that so much land in other localities remains uncultivated, but in the outlying districts where these reclamations take place, they still appear to afford the prospect of repayment for the cost incurred, and at the low price at which such land is probably sub-let, tenants are found to occupy it either separately in small quantities or as additions to their holdings when it is so obtainable. There is always among landlords and farmers some uncertainty in deciding whether land of this class should, soon after its reclamation, be included in these returns, and the character of the season may in some measure occasionally determine their decision. Every effort is made however to secure accurate information in regard to these additions when returned, in tracing out large differences which may be observed to the particular parishes in which they occur, and obtaining through the Inland Revenue Office explanations from their local officers as to the reason of discrepancy.

"In several counties, as is annually the case, instances of decreases in the area of land under cultivation are reported by collectors in reference to land previously agricultural being taken for building purposes, construction of railways, &c., and some of that unoccupied in 1881, when the previous return as to unoccupied land was obtained, has doubtless, where situate near large towns, since been thus utilised.

"There are also the usual differences, which do not, however, affect the total cultivated area, as to bordering farms, which are occasionally, in cases of separate holdings occupied by the same person, included in the collection of a particular county one year and in that of an adjoining county the next year.

"With regard to the details of particular crops in Great Britain, the most noticeable feature as regards corn crops, apart from the important decrease in the total, is that compared with 1886, there are slight increases in the areas under wheat and oats, while the area under barley has considerably decreased.

"The total quantity of land returned under wheat in the present year is 2,317,324 acres, or 31,419 acres (equal to 1·4 per cent.) more than in 1886, but a decrease as compared with 1885 of 160,994 acres or 6·5 per cent.

"An exceptionally favourable seed time is reported by the officers generally to have greatly influenced the proportion of wheat sown, but the imperative requirement of straw, which at present is of relatively high value, is in a few counties said to have contributed towards preventing further diminution of the acreage which has in recent years been recorded for this crop.

"As regards the separate divisions of the kingdom, the acreage of wheat compared with that of the preceding year has increased in England by 1·69 per cent., that of Wales being more by 1·10 per cent., whilst in Scotland there is a falling off of 10·31 per cent.

"The area under barley in 1887 was 2,085,156 acres, the smallest acreage yet recorded for this crop in these returns, the decrease being no less than 156,008 acres or 7·0 per cent. from last year. The diminution is almost unanimously ascribed by the collectors to the low prices for grain of this description which have lately been obtainable.

"The large importations of foreign barley which have been taking place since last season are also referred to, over 1¾ million quarters more having been imported in the twelve months ending 31st August, 1887, as compared with the quantity imported during the same period in 1885-86.

"Taking into consideration the circumstance that the deficient acreage of barley is unaccompanied by any corresponding increase in the two other principal corn crops, it appears to be only further evidence of the tendency, adverted to in previous reports, towards allowing land to be otherwise utilised rather than retain it under tillage, for which farmers generally have not now, it is stated, adequate capital.

"Oats were sown on 3,087,989 acres, only 6,393 acres or 0·2 per cent. in excess of 1886, but it is worthy of note that they covered a larger breadth in the present year than has been returned under this crop since these statistics have been collected. Some of the officers remark that of the principal corn crops it is the only one at all remunerative, and reference is further made to the fact that the straw is being greatly used for feeding stock in winter in many parts of the country.

"Among the other corn and pulse crops the acreage under rye shows a slight diminution of 700 acres. Beans, compared with 1886, have decreased by 10,000 acres, while peas have increased by 15,000 acres.

"Altogether the total area under corn crops in Great Britain in 1887 is thus brought up to 8,145,900 acres, or 114,200 acres short of that in 1886, a decrease of 1·38 per cent., the average area of the preceding ten years having been 8,767,000 acres, or 621,000 acres more.

"Of the area under green crops in Great Britain in 1887, potatoes were planted on 559,600 acres, an addition over the quantity of land so returned in 1886 of 5,600 acres, and showing, as was the case when its production was compared with that of 1885, an increase of about 1·0 per cent.

"Turnips and swedes have further declined. They were this year returned as grown on 1,972,200 acres compared with 2,002,800 acres in 1886, a decrease of 30,600 acres, and there is little doubt but that as in the case of beans and peas the dryness of the spring and summer, so favourable to the yield of wheat, will have greatly lessened the produce of each of these crops.

"Mangold has increased by 11,400 acres, and cabbage, kohl-rabi, and rape have increased by 1,800 acres, while carrots, vetches, and other green crops unenumerated, have together decreased by 5,100 acres.

"The total area of green crops thus amounts to 3,463,700 acres, a diminution of nearly 17,000 acres from the figures of the preceding year, mainly due to the lessened quantity of land sown with turnips and swedes.

"Flax was grown on 3,700 acres, an addition of 600 acres only.

"Hops have decreased, as compared with 1886, by 6,400 acres, nearly 4,000 acres of this quantity being in the county of Kent, where much of the land has not yet, it appears, been otherwise utilised. The collectors state that hop plants on important quantities of land both in Kent and Sussex hitherto so occupied, have been grubbed-up in consequence of the unremunerative character of this crop from the prevailing low prices due to foreign competition. It would appear, however, that the tide of increasing imports referred to in 1886, which has been influential in thus diminishing the acreage of hops, has for the present turned, since the quantity imported during the first eight months of the present year, compared with 1886, has decreased by 22,000 cwt., and has been 14,000 cwt. less than the imports in a similar period in 1885.

"Bare fallow in Great Britain has decreased in much greater measure than has been usual. The diminution, which is chiefly in England, is from 552,898 acres to 485,874 acres, and is now a smaller area by 57,000 acres than that of any year since the returns have been collected. It is said by the officers to be owing to the more favourable seed time, the fine dry seasons in autumn and spring having enabled farmers to clear their land for the cultivation of seeds and grasses or to bring it under pasture for stock purposes. The general disposition to put all available land under culture is frequently referred to in the reports, and the decrease extends to almost every county in England and Wales.

"Clover and rotation grasses show a further considerable increase in Great Britain, their extent being 4,781,000 acres, or 91,800 acres more than in 1886, distributed in an addition of 73,400 acres to clover for hay, and of 18,400 acres to that not intended to be so used.

"The preference to clover for hay over meadow grass is occasionally noticed in certain districts. It appears also that the acreage devoted to hay would have been yet greater but for the fact that in some localities the crop was grazed instead of being mowed owing to the extreme shortness of other available keep for stock. A fairly increasing demand for clover as green food for stock in some of the larger towns is, however, referred to by those officers within whose districts it has attracted attention.

"The movement in the direction of constant additions to permanent pasture, which has been so often remarked upon in former reports, continues, and the results are shown this year in an area of 15,671,000 acres, as compared with 15,535,000 acres in 1886, an increase of 136,000 acres. The area of arable land, on the other hand, is less by 112,000 acres, about 16.944,000 being returned in 1887 against 17,056,000 acres in the preceding year.

"Of the total quantity of land included in the returns as under permanent pasture this year, that for hay, amounting to 4,562,000 acres, exhibits an increase over 1886 of 144,000 acres, while the grass not intended for this use shows a slight decrease of about 8,000 acres, probably in the latter instance due also to one of the reasons before alluded to in reference to the item of clover not appropriated to hay, namely, the early obligation to graze some of it instead.

"Most of the reports of the officers agree in the information they furnish as to the reasons for the extension under the heads both of clover and rotation grasses and of permanent pasture which is laid down for hay. In the dearth of fodder, which this year again early existed owing to the protracted winter, realisation upon live stock became general, while for the remaining stock which farmers kept, the supply of available hay was but sufficient to meet requirements. Old hay consequently became almost universally scarce and dear, and in the present condition of agriculture farmers with insufficient means find hay to be a commodity immediately available for conversion into money. They are able by so appropriating their land, it is said, to diminish the labour account on their holdings, and thus for a time tide over immediate embarrassment.

"This question of insufficient capital is mentioned by one collector 'to underlie the whole movement, and to determine the course of action of occupiers who cannot now afford to pay for the labour necessary to good cultivation, and therefore stop the plough.' Owners, it is added, have much land on their hands which they also seed out to save upon the labour item, 'while tenants are allowed in some cases to cart off straw.' That the land is 'thus impoverished and drifts into clover and permanent pasture from sheer necessity.' It is stated in the report here referred to that a great deal of land in the districts more particularly under the collector's observation has been 'strawed two or three times in succession, and has been seeded out with the last straw crop with but little or no manure,' and that this 'cannot but be regarded as an improvident system of farming.'

"Orchards in Great Britain again show an enlarged area, covering 202,234 acres, as compared with 200,284 in the previous year.

"Allusion has been made earlier in this report to the fact that some 18,000 acres are this year brought into these returns for which the particulars forming that aggregate have not hitherto been obtained. It had been in several collections reported that to a considerable extent currants, gooseberries, and other small fruit, for which there was no appropriate column in the schedule, were grown under or between the trees in orchards, and to this extent the land which was not already entered as under grass in orchards was excluded from the total acreage. To meet this particular defect in the returns, and to secure, as far as possible, the inclusion of all the orchard land in the general total, a new column was inserted in the form under the title of 'small fruit.' It was likewise surmised that a considerable quantity of small fruit which is also grown in market gardens, was continually entered among other crops in the returns, as provision had not been made to obtain this item separately.

"The endeavour this year to ascertain the quantity grown in orchards, owing to misapprehension here and there with regard to the precise intention of the heading in question, has been but imperfectly successful, inasmuch as the acreage intended for small fruit in orchards only, has in several localities been found to comprise some of that belonging properly to market gardens, and secondly, on account of the circumstance that the Table No. XII does not represent the entire acreage of the small fruit grown in orchards and market gardens together, and without this explanation would therefore be misleading. Subject to the qualifications above noticed, the return of small fruit referred to, shows in 1887 in Table XII, 18,476 acres under culture. Considering the uncertainty as to the details which the returns furnished in regard to this item really contain, it is scarcely worth while to analyse the particulars given for each county, but as the question is one in which many people feel interest, it is hoped that next year it may be found practicable to overcome the difficulty, and thus to obtain more accurate information on this subject.

"The acreage under market gardens is this year 62,666 acres, as compared with 60,850 acres in 1886.

"For land used by nurserymen for the growth of trees, shrubs, &c., the returns for 1887 show a slight decrease from the acreage of last year.

"The extent occupied by woods and plantations will be found in the table relating to orchards, &c. Annual returns are not obtained for it, as it does not vary greatly from year to year. As however the acreage has not been collected since 1881, it is proposed, with the concurrence of the Inland Revenue Department, to collect fresh statistics next year to be included in the agricultural returns.

"Turning now to the various kinds of live stock in Great Britain, the record of the present year cannot be looked upon as satisfactory. There is a slight decline of 577 in agricultural horses, accounted for much in the same manner as have been previous recent reductions in the numbers of this class, namely, that owing to the smaller quantity of land under corn crops, fewer horses are required under the present system of farming. The deficiency in this class is more than made up, however, by an increase of 3,601 in unbroken horses and mares returned as kept for breeding.

"Since the abolition of the duty on horses in 1874, there have been no statistics obtained of the number of horses in Great Britain exclusive of those which come into the returns as being used in agriculture or as brood mares and their foals.

"So far as relates to the trade in horses between the United Kingdom and foreign countries, more horses have lately been imported than exported. The imports of foreign horses into the United Kingdom in 1886 show, however, a decline of 1,997 in number when compared with those of 1885, and so far in this year this position has been maintained, while the exports have increased.

"It is remarkable that in spite of the increased acreage under permanent pasture and clover or artificial grasses in Great Britain, the stock of cattle has fallen off considerably in the past year, each of the several classes of this stock, as distinguished in the returns, participating in the result, the total number being now 6,441,268, or 205,415 (equal to 3·1 per cent.) less than in 1886, and 156,696 (or 2·4 per cent.) less than in 1885. Cows and heifers in milk or in calf have slightly decreased by 1,585, England alone showing a very small increase of 4,647 head, or 0·3 per cent., the number in Great Britain being this year 2,536,280.

"Other cattle of 2 years of age and above number 1,559,073, or 1·0 per cent. less, while young cattle have further decreased as compared with 1886 by no less than 188,020, or 7·4 per cent., the decrease in this class being distributed over the three divisions of the kingdom.

"The combined effects of the severe and protracted winter, and scarcity of keep in the subsequent dry spring and summer, are noticed by the collectors as having been the chief reasons of the decline in numbers, farmers having been compelled to realise upon all they could spare when it became evident that cattle food, either in grass or roots, would probably be again scarce. The lower value of all descriptions of cattle thus brought about, together with the number of only partially stocked farms on the hands of owners are here and there alluded to as having been also material factors in the result.

"On young cattle especially the first mentioned causes appear to have told very heavily, and following upon a considerable reduction in this class of stock returned in the previous year, when they numbered 2·6 per cent. less than in 1885, the result is all the more serious. There are statements of the officers in many counties to the effect that calf-rearing was found unprofitable. One collector mentioning that in his district the experience of farmers has been that the prices obtainable for cattle at 2 years old fall short of the cost of rearing them by 30*s.* a head. They were consequently sent in larger numbers than usual to the butcher, and it has been matter of general remark among farmers in several localities that more calves had been this year brought to market within a few weeks prior to the collection of the returns than had been hitherto known.

"In certain counties of Scotland the non-introduction of the usual supply of store cattle from Ireland, owing to local restrictions temporarily imposed upon removal and importation on account of the prevalence of pleuro-pneumonia in Scotland is alleged to have partly contributed to the decrease shown for that division of the kingdom.

"The remarks as to scarcity of keep due to the long winter, and its consequences in diminishing the numbers in the cattle census, are also put forward to explain the lessened number of sheep of 1 year old and above, which is this year 16,146,249 as compared with 16,175,999, or a decrease of 29,750, the whole of which is in England. The effects of the severe cold are occasionally noticed as having also caused considerable mortality in sheep of this class in some parts of the kingdom; but in the respective divisions of Wales and Scotland, in which it might naturally be expected that the results of such climatic causes would be most evident, increases of 35,440 and 16,280 respectively occur.

"The statements of collectors as to early forced sales owing to the reasons given, and that much land is now in the hands of owners and only partially stocked, have, therefore, there is little doubt, been mainly influential in determining the result shown. To counterbalance this there is, however, a satisfactory increase of 467,800 lambs, due, it is generally said, to the favourable lambing season in most districts of the kingdom, and thus turning the deficiency in sheep of a year old and above into a total increase in sheep and lambs, taken together, of 438,050, or about 1·7 per cent. The increase in lambs alone as compared with last year having been equal to 5·0 per cent. It should be added, however, that both sheep and lambs are fewer than in 1885 by 391,358 and 184,509 respectively.

"Pigs numbered 2,299,323 as compared with 2,221,475 in 1886, an increase of 3·5 per cent., which is variously ascribed to the cheapness of potatoes and barley meal, and to the higher prices now obtainable for this description of stock. It is mentioned that in some districts the decrease in calves has enabled more pigs to be kept.

"In the returns of the crops and live stock in Ireland the following changes are to be noticed. There is a decrease in the cultivated area (comprising all the land which is included under this head in dealing with the totals of the returns in Great Britain) of 82,000 acres, the area being now 15,129,000 acres, compared with 15,211,000 acres in the preceding year.

"As regards corn crops they appear to be less altogether by 28,503 acres, the acreage under wheat having diminished by 2,186 acres, and barley by 19,369 acres, while the decline in oats is 7,503 acres, the acreage under rye and the pulse crops showing together an increase of only 555 acres.

"Among green crops the potato acreage is less by 3,000 acres, 796,700 acres having this year been so planted. Turnips show a slight increase over the breadth sown last year, when 299,200 acres were under this crop. Mangold, cabbage, rape, carrots, together with lucerne and other green crops, except vetches, have severally increased, the total of green crops amounting to 1,228,746 acres, compared with 1,221,176 acres in the previous year, and showing an increase altogether of 7,570 acres.

"Flax was grown on 130,200 acres, an increase of 2,300 acres over the acreage of 1886. The land returned under bare fallow was less by 4,300 acres.

"It will be seen that it has this year been practicable to give for Ireland the figures under the respective headings of clover, sainfoin, and rotation grasses, and of permanent pasture, and to distinguish further the quantities of each kind appropriated for hay, and those not for hay, so as to represent these items in the same manner as they are now shown in the agricultural returns for Great Britain.

"The circumstances which rendered it impossible in 1886 to separate permanent pasture from artificial grasses, and likewise to show the details of the acreage as to grass cut for hay, and that not so used were explained in the report accompanying the returns.

"The area occupied by clover, sainfoin, and rotation grasses this year amounts to 1,195,700 acres, of which nearly 636,200 acres were intended to be cut for hay. The acreage of land under permanent pasture was for hay 1,507,300 acres, while that of land not intended for hay production was 9,492,200 acres, or altogether 10,999,500 acres.

"As regards live stock in Ireland, horses have increased from 492,831 in 1886, to 499,330 in 1887. Milking cows and heifers show a decrease of 26,739 or 1·9 per cent. Young cattle have decreased by 9,367, but other cattle of 2 years of age and above have advanced from 952,327 in 1886 to 961,815 in the present year, thus making the total number of cattle 4,157,409 or 26,618 less than in 1886.

"Sheep and lambs taken together exhibit an increase of 10,695. The total number of sheep being now 2,032,782, and of lambs 1,345,635.

"Pigs have also increased in number, namely, from 1,263,133 in 1886 to 1,408,485 in the present year.

"Taking then the figures for the whole of the United Kingdom, including the Isle of Man and the Channel Islands, it will be observed that there is a decrease from the returns of last year of 57,800 acres as regards the total cultivated area, owing to the diminution of 82,000 acres in Ireland. Corn crops and green crops have each a less acreage. Rotation grasses and permanent pasture both show a large extension of area in Great Britain, but for the reason explained in last year's report it is not practicable to give the figures as to increase or decrease in regard to these last mentioned areas for Ireland.

"Cattle have altogether considerably decreased in number, while sheep and pigs have both increased.

"The following table shows a comparison of the figures for the United Kingdom, including the Isle of Man and the Channel Islands, between the years 1887 and 1886:—

Acreage.	1887.	1886.	1887 compared with 1886.	
			Increase.	Decrease.
	Acres.	Acres.	Acres.	Acres.
Total cultivated area	47,874,369	47,932,239	—	57,870
Corn crops	9,735,400	9,878,787	—	143,387
Green „	4,716,679	4,726,452	—	9,773
Flax	133,904	130,933	2,971	—
Hops	63,709	70,127	—	6,418
Bare fallow	498,992	570,280	—	71,288
Grass and clover, &c., whether intended for hay or not for hay (*including permanent pasture, and grasses under rotation*)	32,725,685	32,555,660	170,025	—
LIVE STOCK.	No.	No.	No.	No.
Horses	1,936,925	1,927,527	9,398	—
Cattle	10,639,960	10,872,811	—	232,851
Sheep	29,401,750	28,955,240	446,510	—
Pigs	3,720,957	3,497,165	223,792	—

"The usual table prepared for this report showing the relative course of agriculture in the counties of England, arranged in two divisions of chiefly grazing and chiefly corn-growing counties, has next to be noticed.

"The grazing or western division, it may be explained, includes twenty-one counties: Chester, Cornwall, Cumberland, Derby, Devon, Dorset, Durham, Gloucester, Hereford, Lancaster, Leicester, Monmouth, Northumberland, Salop, Somerset, Stafford, Westmoreland, Wilts, Worcester, York (North Riding), and York (West Riding).

"The corn or eastern division includes twenty-one counties: Bedford, Berks, Bucks, Cambridge, Essex, Hants, Hertford, Huntingdon, Kent, Lincoln, Middlesex, Norfolk, Northampton, Nottingham, Oxford, Rutland, Suffolk, Surrey, Sussex, Warwick, and York (East Riding).

"Although the number of the counties is the same in each of these groups, the total acreage is larger in the grazing than in the corn division in the ratio of 53·7 to 46·3 per cent. of the total acreage under crops and grass in England.

Acreage under Crops, and Number of Live Stock, in Grazing Counties and in Corn Counties of England, and Percentages of the Totals for England in Grazing and Corn Counties respectively in the Year 1887.

	In Grazing Counties.		In Corn Counties.	
	Acreage and Number.	Percentage of Total for England.	Acreage and Number.	Percentage of Total for England.
	Acres.	Per cnt.	Acres.	Per cnt.
Total acreage returned under all kinds of crops, fallow, and grass	13,387,313*	53·7	11,534,739†	46·3
Total acreage of permanent pasture for hay	2,436,308	62·0	1,490,205	38·0
not for hay	5,820,962	67·5	2,799,028	32·5
Total acreage of arable land	5,130,043*	41·5	7,245,506†	58·5
Acreage under—				
Wheat	713,851	32·5	1,483,729	67·5
Barley and bere	546,187	31·0	1,213,449	69·0
Oats	949,204	53·7	818,919	46·3
Rye	16,688	36·3	29,306	63·7
Beans	84,003	24·0	265,670	76·0
Peas	44,856	19·8	181,146	80·2
Total under above corn crops	2,354,789	37·1	3,992,219	62·9
Potatoes	206,691	56·0	162,552	44·0
Turnips and swedes	645,006	45·4	774,262	54·6
Mangold	99,651	28·3	251,937	71·7
Carrots	3,100	21·4	11,368	78·6
Cabbage, kohl-rabi, and rape	53,958	37·0	91,732	63·0
Vetches, lucerne, &c.	108,650	28·6	271,636	71·4
Clover & other grass under rotation for hay	813,734	47·6	894,985	52·4
not for hay	670,349	60·0	446,066	40·0
Total under above green crops and grass under rotation	2,601,139	47·2	2,904,538	52·8
Bare fallow	163,136	35·8	293,276	64·2
Flax	1,560	56·8	1,186	43·2
Hops	9,419	14·8	54,287	85·2
Orchards and market gardens	163,532	64·2	91,026	35·8
Nursery grounds	4,730	44·3	5,939	55·7
Woods, &c.	761,892	52·0	704,146	48·0
	No.		No.	
Number of horses used solely for agriculture	373,549	48·7	393,144	51·3
Number of horses unbroken and mares for breeding	185,511	56·1	144,998	43·9
Number of cattle	3,000,989	64·9	1,622,726	35·1
„ sheep	8,861,725	53·9	7,590,783	46·1
„ pigs	1,000,191	51·5	940,316	48·5

* Not including 4,305 acres under small fruit in orchards (see Table XII).
† „ 12,848 „ („).

"A comparison of the figures in the preceding table for 1887 with those published in 1886, shows very slight variations except in a few instances. Thus, in the acreage under corn crops the percentage proportion of the total for England in the grazing counties is now exactly the same as last year, wheat being now 32·5 in those counties compared with 32·4 in 1886. Oats and beans have both increased in those counties, the proportionate percentage being there 53·7 for oats, and 24·0 for beans, against 53·2 and 23·7 respectively. In the corn counties potatoes have increased, and the proportionate percentage is this year 44·0 against 43·2 in 1886.

"The distribution of the total acreage under green crops and rotation grasses is nearly the same as last year. The percentage of cabbage, kohl-rabi, and rape has decreased in the corn counties, the proportion being now 63·0 against 64·7 in 1886, while vetches, lucerne, &c., have slightly increased from 71·3 to 71·4 in the present year.

"In bare fallow the proportion in the corn counties has increased, the percentage in those counties being 64·2 as against 61·7 in 1886.

"In clover and grasses under rotation respectively reserved for hay, as well as for permanent pasture similarly distinguished, it will be found that the acreage of the first-mentioned crop for hay has increased in the corn counties, the proportionate percentage being there 52·4 against 51·5 in 1886, the percentage of extent not intended for hay having decreased from 40·5 to 40·0.

"In permanent pasture for hay, the proportionate percentage has also increased in those counties from 37·6 to 38·0 in the present year, that of the quantity not intended to be so used remaining the same as in 1886.

"As regards live stock, the distribution of cattle is exactly the same as last year.

"Sheep have increased in the grazing counties, the number here this year being 53·9 of the total, and 46·1 in the corn counties, the percentages in 1886 having been 53·3 and 46·7.

"In pigs there has been again a decrease in the corn counties, the proportionate number in this division being now 48·5 against 49·9 last year.

"The distinguishing characteristics of the cultivation of the two divisions show, according to the figures of the following table, that in the corn counties 34·6 per cent. of the cultivated acreage in that division is now devoted to corn crops, and 37·2 to permanent pasture, while in the grazing counties the acreage under corn crops is only 17·6 of the cultivated area of the division, the acreage of permanent pasture being 61·7 of that area :—

Acreage of each Description of Crop in Grazing Counties, in Corn Counties, and in all Counties of England, and Percentage of Total Cultivated Acreage under each Description of Crop in the Year 1887.

Description of Crops.	In Grazing Counties.		In Corn Counties.		In all Counties.	
	Acreage.	Percentage of Total Cultivated Acreage in the Division.	Acreage.	Percentage of Total Cultivated Acreage in the Division.	Acreage.	Percentage of Total Cultivated Acreage in England.
	Acres.	Per cnt.	Acres.	Per cnt.	Acres.	Per cnt.
Corn crops	2,354,789	17·6	3,992,219	34·6	6,347,008	25·5
Green "	1,117,056	8·3	1,563,487	13·5	2,680,543	10·7
Clover and other grass under rotation—						
For hay	813,734	6·1	894,985	7·8	1,708,719	6·9
Not for hay	670,349	5·0	446,066	3·9	1,116,415	4·5
Bare fallow	163,136	1·2	293,276	2·5	456,412	1·8
Flax	1,560	0·0	1,186	0·0	2,746	0·0
Hops	9,419	0·1	54,287	0·5	63,706	0·3
Total of arable land	5,130,043*	38·3	7,245,506†	62·8	12,375,549‡	49·7
Permanent pasture—						
For hay	2,436,308	18·2	1,490,205	12·9	3,926,513	15·7
Not for hay	5,820,962	43·5	2,799,028	24·3	8,619,990	34·6
Total	13,387,313	100·0	11,534,739	100·0	24,922,052	100·0

* Not including 4,305 acres under small fruit in orchards (see Table XII).
† " 12,848 " (").
‡ " 17,153 " (").

"Comparing live stock with acreage in the three divisions of Great Britain, the returns show that on the 4th of June, 1887, the proportionate numbers of live stock per 1,000 acres of cultivated land were, in England of cattle 186 against 191 in the preceding year, and of sheep 660 in 1887 against 658 in 1886. In Wales the proportionate numbers were of cattle 246 against 255, and of sheep 968 in 1887 as compared with 891 in 1886, while in Scotland there were of cattle 230 in 1887 against 238 in 1886, and of sheep 1,391 in 1887 against 1,361 last year.

"A period of twenty years having now elapsed since these agricultural returns were first officially obtained, it has been thought that it might be of interest this year to insert tables for the years 1867, 1877, and 1887, showing the changes which, according to the figures therein given, had taken place in the course of agriculture at the end of each of the two decennial periods since their first collection.

"Other tables have also been added relating respectively to imports of grain, meal, and flour from each country in 1886; and to the acreage, total produce, and estimated average yield of various kinds of grain; as well as to the numbers of certain descriptions of live stock in the United Kingdom, and in some foreign countries and British possessions for a short series of years.

"The comparative tables showing the imports of animals, of quantities of meat of all kinds, and the various countries whence the supplies are derived, the respective values per head of animals imported, the prices of certain agricultural produce, and other particulars which should be of interest on points in which agriculturalists are concerned, are again included among these returns.

"A form for the return of silos was this year inserted in the schedule, as it was believed that many were overlooked owing to the separate form previously used for the purpose of obtaining the information not being returned to the collectors. It appears that the number in Great Britain is now 2,694 as compared with 1,605 returned in 1886, while their total capacity is greater by 2,702,180 cubic feet. It is mentioned that 62 of these silos will not, however, be used this year. In addition to the total number of silos here referred to, 1,362 persons say that they propose to make ensilage in stacks. The number of those who stated that they adopted this method last year was only 27.

"Particulars have been again obtained respecting the experimental cultivation of tobacco in Great Britain and Ireland, from which it appears that the following quantities of land within the respective counties named have been planted with it in the present year in Great Britain, viz.: Aberdeen 1 acre, Banff 9 poles, Bedford 20 poles, Berkshire 2 poles, Cambridge 3 roods, Cornwall 1 pole and 20 square yards, Cumberland 1 rood, Devon 3 roods and 16 poles, Dumfries 1 acre, Essex 1 acre and 8 poles, Glamorgan 6 poles and 30 square yards, Gloucester 1 rood, Huntingdon 1 rood, Kent 5 acres 2 roods and 19 poles, Lincoln 1 acre 3 roods 1 pole and 5 square yards, Middlesex 3 roods, Norfolk 3 roods, Stafford 1 rood, Surrey 1 rood and 30 poles, Sussex 20 poles and 4 square yards, Warwick 20 square yards, Westmoreland 30 square yards, Worcester 11 poles, and Yorkshire 3 acres, being an increase, in Great Britain, of 13 acres 2 roods 39 poles and 24 square yards over the quantity of land so cultivated in 1886.

"In Ireland it has been cultivated in three counties only, namely, Cork, Dublin, and Limerick, and the quantities of land so occupied have been 30 poles, 3 roods, and 1 acre respectively.

"The interesting series of reports on insects injurious to hop plants, corn crops, and fruit crops in Great Britain referred to last year as being in course of preparation for the Agricultural Department, by Mr. Charles Whitehead, F.L.S., F.G.S., who voluntarily undertook this work, has since been completed by the issue of the report on insects injurious to root crops.

"In reference to the appearance of the hessian fly in certain counties of England and Scotland, Mr. Whitehead, at the request of the Lords of the Committee of Council for Agriculture, also prepared papers containing suggestions for dealing with this destructive pest, copies of which were forwarded to the various county local authorities, with a circular requesting that they would have the goodness to cause these suggestions to be distributed among the agriculturists of those parts of the county which might be visited with this insect.

"Copies of the report on the hessian fly, which Mr. Whitehead had also prepared for the Agricultural Department, were subsequently transmitted to the editors of agricultural and other newspapers circulating in agricultural districts.

"In consequence of the anxiety manifested in regard to the subject of the insect pest above referred to, Mr. C. W. Gray, M.P., and Mr. Whitehead were appointed by the Government as Commissioners to inquire into its visitation on corn crops in Great Britain, and their report — Paper [C–5217] 1887 — has been presented to Parliament, giving the result of their investigation."

VII.—*Cattle and Dairy Farming of the World.*

THE following is taken from the *Times* of the 12th October, 1887. It refers to a recent donation to the Society, which is acknowledged on a subsequent page of the present number of the *Journal* under "Additions to the Library:"—

"It is a curious fact that at the moment when attention is being directed to the question of dairy farming in this country by means of our dairy show, and when a discussion is taking place as to how little we are doing in this country as compared with others, a remarkable proof in point should arrive in this country from the United States. In his paper on the needs of technical education in the dairy, Professor Long has produced a mass of statistics as to the work done in Denmark, in Germany, in Norway, in France, and many other European countries. Some of these are described as being honeycombed with dairy schools, and their Governments as helping in a hundred ways. But the most startling and recent example of the life with which other countries are investing the subject had no place in his paper, neither is it exhibited at the dairy show. In outside appearance it has not much to commend it, for it is only two of those sober-looking, black-bound, official publications of the Government of the United States of America. But those two volumes contain no less than 850 pages of closely printed letterpress, and 368 full paged coloured plates, descriptive of the cattle farming and dairying of every country in the world, and illustrative of every known breed of cattle. Such a work has never before seen the light, and that it should be issued by any Government ought to be a matter for most genuine satisfaction. No private individual could have prepared it, and no publisher would have been warranted in going to the expense of printing it.

"To give a review of such a work is impossible. Blemishes might be pointed out, but they are so very small that they might well be compared to the spots on the sun's face. One notices, for example, that names of English breeders and English places are curiously and wondrously contorted by the printers, but they are so obviously printers' errors that can be easily rectified in a new edition, that only those who are prone to magnify the ant-hill into a mountain would indulge in any serious grumbling. Neither has the work been edited into that symmetrical form which the lover of a finished production would ask for. Another fault is that it is composed of consular reports, and has all the faults of such reports. The consuls get all the information they can on a subject, and in the report everything goes, making the reports in cases too long, while facts are sometimes tediously repeated by other consuls in the same or neighbouring countries. But all these faults do not touch the one great fact, that the student on the subject of dairying or cattle breeding can find out the customs, practice, and knowledge on the subject in every part of the civilised world, and that, too, at as recent a date as 1886. The information is solid, sound, and trustworthy, and the whole work one that will live long and become the basis of many future works. A new edition would require amendment and slight additions. For instance, in the paper on scientific implements for the dairy, there are many important omissions, which apparently come from the fact that the writer was not a chemist.

"It may be well to state briefly the history of the work. It appears that it has been some four years in preparation, a circular letter having been sent out at the end of 1883 to all the American consular agents, asking them to obtain the fullest information on the breeds of cattle, the management of cattle, and the dairy farming of their respective countries. These two volumes are the answers, and it is a curious feature, and one which shows the thoroughness of the work, that in no case did a consul answer the inquiry under a year, in most cases they were two years, and in some cases they were three years in preparing their reports.

"Of the scope of the work a few facts may be given, as shown by an analysis of the index. Take cattle feeding, for example. Of this, there are no less than eighty-three descriptions in different countries or districts, besides an immense amount of statistical information. There are also as many as eighty-six distinct breeds of cattle of different countries fully described and illustrated, while of no less than twenty breeds elaborate tables of milk yields are given. Everything is on this colossal scale, and makes the work most complete and exhaustive."

VIII.—*The Trade Improvement in* 1887.

The following is taken from the *Statist* of 15th October, 1887:—

"As the much talked of improvement in trade should have had a material influence on the very depressed prices of 1886, it may be interesting to your readers to examine the following figures:—

"In my table published by the Statistical Society[1] I took the eleven years 1867-77 as my standard for the calculation of the index numbers of forty-five commodities. The movements of prices in comparison with this average point have been as follows:—

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[1] See p. 180 in the March number of this volume.

1867-77	100	1887.	
'73	111	January	69·5
'78	87	February	68·5
'79	83	March	68·3
'80	88	April	68·4
'81	85	May	68·2
'82	84	June	67·9
'83	82	July	68·1
'84	76	August	68·3
'85	72	September	68·7
'86	69	Average	68·4

"These figures show that an improvement in some branches of trade, if it has taken place, has had no effect on the general level of prices, which for the first nine months of the year is, on the average of the principal articles, the lowest on record during the last hundred years. With the exception of somewhat higher prices for tin, and lately for Manilla hemp, there is only one article which has experienced a considerable rise, viz., coffee, on account of the failure of the Brazil crop, while the bulk of other commodities is now very low. English wheat was in September 47 per cent. below the average point, and has not been so cheap since 1761. Sugar is now 50 per cent., tea 48 per cent., pig iron 41 per cent., copper 47 per cent., coal 30 per cent., cotton 45 per cent., merino wool 33 per cent., English wool 47 per cent., meat and butter 15 per cent. below the average of 1867-77, while tin is at par, and coffee 21 per cent. higher.

"Silver at 44*d.* per oz. is 28 per cent. below the old average point, or at a ratio of 21½ to 1 gold.

"A. SAUERBECK."

[Almost coincident with this letter began a rise of prices in copper and other articles; but we reprint the letter nevertheless, as probably marking a turning point.]

IX.—*Notes on Economical and Statistical Works.*

Bulletin de l'Insitut International de Statistique. (Tome ii, 1ère et 2ème Livraisons.) Rome: Imprimerie Héritiers Botta, 1887.

The two bulky volumes before us furnish irrefutable testimony to the usefulness and vitality of the International Statistical Institute; and they are invested with peculiar interest for the members of the Royal Statistical Society, not only because they contain most valuable contributions towards the advancement of statistical science, but also because they may fittingly be regarded as the offspring of the Society itself. It was at the Jubilee meeting of the Statistical Society (*cf.* Jubilee Volume, pp. 284—330) that the project of the International Institute first took tangible shape. It was there that its constitution and its list of members were drawn up in regular form; and the then President of the Society was chosen as President of the Institute, as well on account of his position at the head of one of the oldest, and perhaps we may be allowed to add, in Dr. Neumann-Spallart's words, "the most important statistical society of Europe," as on account of his own long and faithful services to the cause of statistics.

The former of the two volumes contains a record of the proceedings at the first meeting of the Institute, which was held in April last at Rome. The success which attended that meeting is of happy augury for the future; and we may reasonably hope that the "new phœnix," to use Dr. Engel's felicitous language (p. 51), which has risen from the ashes of the old statistical congresses, may be endowed with something at least of the longevity of the fabled bird. The volume begins with a statement of the rules of the Institute; and it may be well here to recall the quadruple object for which it was founded. Its general purpose is of course the advancement of administrative and scientific statistics; and the four directions in which it is proposed to further this aim are here enumerated. The first is the discovery and recommendation of the methods suitable for securing the greatest uniformity that is possible in the statistics of different countries. The second is to call the attention of Governments to questions the solution of which may be found in statistical observation. The third is the issue of international publications designed to throw light on statistical questions and to establish permanent relations between statisticians; and the last is the propagation by books, by instruction, and by different means, of statistical knowledge and inquiry. The list of members which follows the rules shows that the Institute has gone far to succeed in the third of these aims, and this conclusion is strengthened by the proceedings of the meeting at Rome. That meeting began on the 12th of April, and lasted until the 16th. In the mornings committees inquired into various topics, and in the afternoons general assemblies were held. The Italian Government extended a cordial and ready hospitality to the Institute, and welcomed its members through the lips of Signor Grimaldi, the Minister of Agriculture, Industry, and Commerce. To this a response was made by the President, who explained the objects of the Institute, and traced its connection with the old international congresses. Sir Rawson forcibly argued that the obvious lesson to be drawn from the history of that connection was this—that if the meetings of the Institute were to succeed, they must select for treatment a few subjects of serious importance, the discussion of which would be of profit both to nations and to governments, and they must endeavour to treat them from a practical standpoint, and to avoid idle speculation.

The proceedings of the meeting seem to have satisfied—and more than satisfied—this criterion. It would be impossible in the limited space at our disposal to attempt an exposition or a criticism of the subjects considered; and indeed we may fairly plead that neither the one nor the other is needed. The exposition can be better supplied by a perusal of the volume itself; and for all who wish to keep abreast of the progress of statistical knowledge this is quite indispensable: the criticism would be impertinent, as the subjects are discussed by those who have made them their own and are therefore the recognised authorities upon them. We must then content ourselves with an enumeration of the subjects considered and of the statisticians who treated them, and we are convinced that such an enumeration will serve at once as evidence of the very great importance of the volume and as an irresistible inducement to statistical students to set about its perusal.

The first subject discussed was the question of consumption as a measure of the well-being of individuals, of families, and of nations; and this was treated of by Dr. Engel. He was followed by Dr. C. Keleti, who described a new system for arriving at statistics of national consumption—with especial reference to Hungary—and by M. E. Cheysson, who discussed "la monographie d'atelier." On the Wednesday afternoon Professor Neumann-Spallart handled a topic which is peculiarly his own—the measure of the variations in the economic and social state of nations; and Professor Inama-Sternegg,—departing from the practice observed with this exception throughout the meeting of speaking in French and employing his own language,—contributed an important discussion of the means of improving historical statistics. On Thursday afternoon Dr. Ferraris presented an examination into the particular difficulties attending statistics of the movement of the precious metals in international trade; Dr. Léon Vacher treated of the decrease of mortality and the increase in the average duration of life in Europe; and M. Bodio offered some verbal comments upon the hygienic and sanitary conditions of Italy. On Friday Dr. Broch discussed the consumption in Europe of modern stimulants; and on this and the following day the reports presented by the several committees, which met in the mornings and investigated the important topics of statistics of prices and systems of "index numbers," of statistics of landed property and its distribution, of statistics of wages and the collection and arrangement of census-returns, of statistics of trade and of public debts, and last, but by no means least, of statistical bibliography, were considered and resolutions adopted about them. On Saturday the meeting closed, and it was determined that the next biennial meeting should be held in Paris in September, 1889, at the time of the *Exposition Universelle.*

The second of the two volumes under our consideration contains an article in German by Dr. Adolf Wagner on a question connected with statistics of prices; some tables, also in German, contributed by Dr. Böckh on the relation of nourishment to infant mortality; an elaborate comparison in Italian of emigration from Italy with that proceeding from other European States; the second together with the third and concluding part of M. Levasseur's statistics of the area and population of the countries of the world, dealing first separately with Africa, Asia, Oceania, and America, and then summarising the results obtained for the five divisions of the globe, and written in French; some electoral statistics in Italian, communicated by Dr. Carlo Shanzer; a bibliography of recent publications, and an obituary notice of F. Th. Berg, from the pen of Dr. Hyalmar Gussberg. Comment upon the contents of this, as of the preceding volume, would be superfluous. It only remains to be said that both the volumes reflect great credit upon the editor and the printer.

La Science Économique. Par Yves Guyot (seconde édition). Paris: C. Reinwald, 1887.

M. Guyot is well known in this country as one of the most active and determined opponents of French protectionists; and although at the very beginning (Introduction, p. vii) of this elaborate volume he expressly declares his intention of giving an expository rather than a polemical character to his treatise, yet his zeal in the cause of free trade leads him, without departing too far or too frequently from the position of neutrality he thus adopts, to make more than one home-thrust against his protectionist adversaries, and to expose more than one of their fallacious contentions. He maintains indeed that economics is a science and not an art (Book I, chap. vi); and he expressly adopts the title "La Science Économique" instead of the traditional designation, because he argues that the latter is calculated to perpetuate the confusion so often found in economic studies between a science and an art—a confusion indeed from which, as Professor Sidgwick has shown, Adam Smith had not entirely succeeded in freeing himself, and a confusion which has led modern German economists, imbued with the cameralistic associations of the economic chairs in their own universities (p. 11), to imagine that English economists are laying down precepts for practice, when they are really engaged in the construction and exposition of theory. But he also quotes with approval a passage written by J. B. Say in 1826, which he says, with considerable reason, is applicable to modern economic discussion; and in that passage we find the assertion (p. 5) that the antithesis so commonly established between theory and practice is misleading, and that the best theorist is likely also to have the best knowledge of facts.

And in strict accordance with this contention M. Guyot divides his book into two parts although, we must add, he says they are very distinct (p. xxxiv). The first and by far the largest of these is scientific and explains the data and the laws of economics; the second exhibits the violations of these laws of which economic empiricism has been guilty. Indeed even in his Introduction he cannot refrain from deviating for a moment into controversial discussion; and he rapidly surveys the stages through which economics has passed on the way to its present position. He shows how "Colbertism," with its exclusive policy, and its multitudinous regulations, was in harmony with the monarchical omnipotence and self-sufficiency to which Louis XIV aspired; how "laissez-faire" was the expression of a decided reaction from this artificial *régime;* and how nevertheless Turgot and the physiocrats were before their age, for with the Empire came the revival of Colbertism again. And then he proceeds to point out in forcible language that modern protectionism is but the appearance in another form of old-fashioned Colbertism; and that it is therefore two centuries behind the times.

It must not however be supposed that M. Guyot's strenuous support of free trade carries with it any blind adherence to the teaching of the great English economists. On the contrary he appears to us to exaggerate the extent of his departure from that teaching. It must of course be admitted that just as it is proverbially easy to "prophesy after the event," so it is not difficult to fall into the persuasive delusion of believing that previous writers have anticipated the conclusions of later times. It is alike easy and dangerous to read into a writer a meaning which he, consciously at least, never intended to convey. But the older economists have been subjected to such random abuse that the student is often tempted to go back and point out that the new ideas which are now current are the old ideas presented in another garb. And we must confess that M. Guyot seems to us on some occasions to have passed too sweeping a condemnation upon the older writers, and to have been guilty of natural and perhaps pardonable exaggeration of the changes he has himself tried to make.

He declares that it will be his endeavour to give precision to economic definitions (p. xxxii); and he justly claims for himself the privilege which should be accorded to every author of departing from accepted definitions, if he consistently adheres to his own alterations and those alterations are characterised by greater precision than are the definitions which they supplant (Book I, chap. iv). But here, as elsewhere, he does not seem to make sufficient allowance for the greater difficulties by which his predecessors were confronted. He has the benefit of their experience; they had far less abundant materials, and a far less elaborate organon with which to work. He himself, for example, points out that the materials of the economics of to-day consist to a very large extent of statistics (Book I, chap. ii); although, as he observes, these are too often furnished either by people who have little or no interest in their accuracy, or by people who are influenced by a bias which may lead them, consciously or unconsciously, into unfair and delusive manipulation; and therefore the endeavour of the honest statistician is to get below the mere numerical statement, and to discover the sources from which the figures are obtained, and the principle of their compilation. But the older economists had really in the main no such materials at all. They could not have obtained access to the statistics of which M. Guyot makes so lavish and appropriate an use; and they were entire strangers to the "graphic method"—or as he prefers to call it (p. 39) the graphic tables—which he so effectively employs.

And again when we turn to the changes he suggests we must indeed admit that his arguments are couched in clear and vigorous language, that on more than one point he contrives to throw a considerable amount of light, that he adheres with commendable consistency to his own definitions, and that the arrangement of his subject, different though it is from that of ordinary treatises, and presenting in some places an appearance at least of disjointedness, is yet in the main systematically planned and methodically executed, and is summarised in an excellent *résumé* at the end of the volume (p. 503, &c.). But on the other hand we must confess that here too he seems inclined to exaggerate, and we suspect that it might be easy to find the germs of his theory—and indeed he himself admits so much (p. xxxii)—and perhaps more than the germs, in previous writers. The point on which he chiefly insists is the relation between fixed and circulating capital. Some objection may indeed be raised at the outset to the constant use of these terms as antithetical; for as Ricardo has shown there is little, if any, capital which is absolutely fixed; and therefore a continual insistance upon the antithesis may conceivably lead into error. The difference between the two terms is variously described (p. 85); and we may here notice that M. Guyot uses both the term "wealth" and the term "capital" in a wide sense as practically equivalent to utility. "Toute utilité est un capital" (p. 81). "La richesse c'est la possession de l'utilité" (p. 54). And similarly "value," which Proudhon described as the corner-stone of the economic edifice (p. 59) is defined (p. 68) as "le rapport de l'utilité possédée par un individu au besoin d'un autre individu"—a definition which M. Guyot declares corrects the false antithesis between value in use and value in exchange. As industrial progress advances he argues that circulating capital—with the single exception of money—tends to become fixed, and that that progress really consists in obtaining a maximum inverse proportion between the consumption of the one and the production of the other (p 98). We may too formulate a law that the value of fixed capital is in direct proportion to the abundance of circulating capital, and that the value of circulating capital is in inverse proportion to the power of utility of fixed capital (p. 118). In the light of this law we can explain (Book III, chaps. iii and iv) the fall in the purchasing power of money with reference to fixed capital, and the rise in the wages of workmen to which Mr. Giffen in this country, and Mr. Atkinson in America, have drawn such prominent attention (Book IV, chap. iii). For money is circulating capital, and man is fixed capital; and with industrial progress fixed capital tends to rise in value as circulating capital becomes relatively more abundant. We can also explain the occurrence of commercial crises (Book III, chap. v, and Book V, chap. iii), which are due not to over-production but to over-consumption, to over-transformation of circulating into fixed capital; and we can resolve (Book III, chap. i) the seeming paradox that as a nation produces more commodities the apparent sum total of its values diminishes, for it is the circulating capital which falls in value, and it is the fixed which rises.

Statistische Untersuchungen über den Einfluss der Getreidepreise auf die Brotpreise und diesen auf die Löhne. Von Dr. Gustav Karl Metzler. Jena: Gustav Fischer.

In the September number of the *Journal* we noticed (pp. 573—575) another volume belonging to the series of which this book forms part. We then had occasion to explain the general nature and object of the series, and we can now only add that the favourable opinion we were led to entertain from the character of the volume then before us has been confirmed by an examination of the present book. We can, we think, confidently express our belief that the series is likely to prove of considerable and lasting value. In this book there is the same evidence of careful and honest work to which we drew attention in the former volume. The ground which is covered is not indeed so extensive, and the subject is perhaps of less immediate interest, although, as the writer points out (pp. 1 and 22), it has a very intimate connection with discussions of protectionist and free trade proposals, and even in this country recent events have taught us that the re-opening of the Corn Law controversy is by no means impossible.

The plan of the book, which is produced under the *ægis* of Professor Laspeyres, is similar to that of the work we have previously noticed. The author first considers the relation of the price of wheat to the price of bread in different places at the same time (pp. 2—15), and in the same place at different times (pp. 15—21); and he then proceeds to a similar examination into the connection of the price of bread with the rates of wages (pp. 21—42). He begins by drawing attention, as we have already remarked, to the bearing of the subjects he is discussing upon current politics—upon the opposing arguments of free traders and protectionists. He then alludes (pp. 1 and 2) to the material which is available for his purpose—to the tables, for example, of average monthly and yearly prices of wheat in the French *départements* during the period 1800-70, and to the statistics of prices and wages in France at different epochs—and he acknowledges his indebtedness to Dr. Laspeyres for material which is especially suited to his purpose, because it covers an extensive area both in space and in time. He then proceeds to discuss the first of the two main topics of which he treats. He points out (pp. 3 and 4) that, in considering the relation of the price of wheat to the price of bread, we make of necessity the supposition that all the other influencing factors are either eliminated or are constant in their effects. But the fact remains that the quality of the bread may vary from place to place, and hence in most of the tables supplied in the book a distinction is observed between two qualities—white bread and black. And even when this distinction has been made, we have not secured a certain guarantee for uniformity of quality from *département* to *département*. The cost, again, of the production of bread may fluctuate owing to fluctuations in the rates of wages, and other similar differences may arise. The only method then of eliminating these extraneous influences—so far as they admit of elimination—is by forming broad averages. Tables are accordingly given (pp. 7—15) of the prices of wheat and of bread in different groups of *départements;* the departure from the general average of the whole of the groups of the average of the individual groups is exhibited; the results are first given separately (pp. 7—10) for single years such as 1844, 1854, and 1855, and then for groups consisting either of four years such as 1849-53 (p. 11), or of decennial periods such as 1824-33, 1834-43, and 1844-53 (pp. 12—14); and on p. 15 the separate results are summarised in one general table. A similar method is adopted in the other sections of the book, and some interesting conclusions are reached. An average parallel rate of advance or reduction is established between the price of wheat and the price of bread in different places at the same time. In the same place at different times—a line of inquiry which admits of the more successful elimination of extraneous influences, because the quality of the bread will not vary so much, and the question will be less affected by the differing character of the districts—whether urban or rural—the price of bread does indeed exhibit a correspondence to that of wheat, but the correspondence is not exact. In considering the second main topic, the relation of the rates of wages to the price of bread, we must of course select (p. 21) for our examples of the former the wages of workmen who are found in most places and possess a definitely marked character; and the author has recourse to statistics in the main of the building trades,—of masons, carpenters, joiners, and locksmiths—and to some extent also of agricultural labour. The price of bread must, it is evident, bear some relation to wages; for about 60 per cent. of a man's wages are estimated to be expended upon the means of subsistence, and of these bread forms a considerable quota. In times of scarcity too the consumption of meat may be limited and a substitute discovered, but bread occupies a different position. And again, the price of bread must affect the cost of production of the workmen (p. 22). But nevertheless the relation is a varying one, for whatever may have been the fluctuations in the price of bread, the rates of wages have steadily advanced during the period over which the author's figures extend (p. 38).

Statistische Skizzen der europäischen und amerikanischen Staaten. Von Dr. H. F. Ritter von Brachelli. (Zweite Abteilung. Leipzig: I. C. Hinrichs, 1887).

This book forms the companion volume to that of which a notice appeared in the last number of the *Journal* (pp. 575—576). It is of course the larger of the two, because in the first part of his work Dr. Brachelli confined his attention to the statistics of his own country; and in this, the second and completing part, he travels over the wide area covered by the rest of the European, and the American States. But he appears to us to be as successful in dealing with this greater range of facts as we saw reason to believe he was in treating of the comparatively limited region of the Austro-Hungarian empire. The method of treatment is similar to that adopted in the first part; and for an enumeration of the various heads under which the statistical particulars of the different countries are arranged we may refer our readers to the notice which appeared in the last number. It is sufficient to add that Dr. Brachelli seems to have gone to the most reliable and official sources for his facts; that he has brought his information down to the most recent dates that were possible—and in one instance we find him referring to the army estimates of the United Kingdom for 1887-88 (p. 137)—that his sketches appear to us to avoid the errors alike of excess and of defect of matter, to embrace and to emphasise the really salient points, and to be marked throughout by clear and systematic arrangement.

Fifth National Convention of the Bureaus of Statistics of Labor in the United States, 1887.

There is one quality which may be described without hesitation as peculiarly characteristic of the American people; and that is the quality of enterprise. They are never afraid of trying novel experiments, they are rarely, if ever, alarmed by fresh ideas, and they display a wonderful facility in adapting themselves to new conditions. And hence it is that we may look with some confidence to America for the practical solution of economic problems, and for the theoretical discussion which must precede that solution. American economists, for example, have recently been turning their attention to questions of State Socialism; and they have discussed these questions—and the volume before us contains some indications of this—with remarkable boldness and impartiality. And the American State-Governments have been among the first to supply the statistical machinery, which is as useful in the discussion of these questions as it is in the treatment of most, if not all, economic problems. It is only recently in England that a department for labor statistics has been organised at the Board of Trade, and we have had as yet little more than the first-fruits of that department. But in America, as we are reminded in the Preface to this volume, and in the admirable address of the President of the Convention, Mr. Carroll D. Wright, eighteen years have elapsed since the first Bureau of Labor Statistics was established, and they now number as many as twenty. The publications issued from them may be indeed—and we could hardly expect that it should be otherwise—of unequal value; the handling of the statistics is indeed not up to a very high standard in any of them; but no one who peruses the programme of work which the different commissioners present at the Convention express their intention (pp. 30—34) of undertaking—no one who studies the address in which the President describes the spirit which should animate, the objects which should direct, and the results which should attend the work of the Bureaus—can doubt that they are engaged in promoting one of the "greatest educational" ends "of the day," and that they may give "great primary aid" in the settlement of social questions. The two subjects on which he lays—and as it appears to us very rightly—the greatest stress as an appropriate field for their work are the important question of the distribution of wealth, and the topic which, one with this in the "concrete," may perhaps be regarded as separable in the "abstract,"—the proportion of product which goes to labour and to capital. The papers read at the Convention bore chiefly upon these points, and they are marked by that bold and candid presentation and criticism of new ideas, and that courageous facing of new problems, which we ventured to assert were characteristic of the American people. We may draw special attention to Mr. Shurr's suggestive paper on "Emigration and Labor," and to the careful and graphic analysis of "The True Nature of Profit" supplied by Professor Folwell, who was present at the meetings by special invitation.

Second Annual Report of the Commissioner of Labor, 1886. *Convict Labor.* Washington: Government Printing Office, 1887.

This report is a favourable specimen of the work performed by the American Bureaus of Labor Statistics. The subject with which it deals is of practical importance; for at the present day—in striking contrast with the past (*cf.* Part II, A)—"it is universally conceded that convicts should be employed at some useful labor" (p. 3), and the practical problem is how are they to be thus employed "without unduly competing with labor outside of penal institutions." The statistical material bearing upon the question which has been here collected by the Bureau is the "result of original inquiry" (p. 287); and it certainly justifies the claim to comprehensiveness put forward by the commissioner. The numerous tables give the "various facts in different situations and combinations;" and, although limited to those penal institutions in the United States "in which convict labor is economically employed in production," they do as a matter of fact embrace—"within a very few thousands"—the "whole prison population." There is evidence also throughout the tables that goes far to establish the other claim of accuracy which is advanced, and there is certainly abundant proof of a capacity for lucid arrangement. The tables are followed by an analysis (chap. ii), from which we learn some interesting facts. Of the total number of prisoners employed in the penal institutions, amounting to 64,349, "45,277 are engaged in productive labor of some kind, 15,100 are engaged in prison duties, and 3,972 are sick or idle" (p. 287). The 45,277 prisoners are employed under four different systems: 15,670 under the "contract system," 14,827 under the "public-account system," 9,104 under the "lease system," and 5,676 under the "piece-price system." According to the first of these four systems a contractor employs convicts at an "agreed price per day for their labor," undertaking the direction himself and receiving from the institution the necessary steam-power and machinery (p. 4). Under the second system the whole business of manufacture is conducted by the institution itself. Under the third, the convicts are leased and handed over entirely for a specified sum to a contractor, who is responsible during a fixed period of time for their sustenance and their discipline. Under the last system the contractor furnishes the raw material to the prison authorities and receives back the manufactured article. Under each and all of these systems the convicts are employed on various kinds of productive labor, and the total value of the goods made and the work done is estimated at $28,753,999·13 (p. 291). Boots and shoes supply the largest percentage of this product, amounting to some 35 per cent., and lumber furnishes the smallest; while the total amount of work done by the 45,277 convicts in the year could have been performed, it is calculated, by 35,534 free laborers. In chap. iii we have a recapitulation of the investigations conducted by different States into the effect of this convict labor upon the earnings of free labor; and in chap. iv the advantages and disadvantages of the various systems and plans adopted or proposed are exhaustively stated and criticised. Looked at from a general point of view, "the competition arising from the employment of convicts, so far as the whole country is concerned, would not of itself constitute a question worthy of serious discussion;" for the product of the prisons is but $\frac{54}{100}$ of 1 per cent. of the total mechanical products of the country. And yet it seems to be the case that "locally and in certain industries the competition may be serious and of such proportions as to claim the most earnest attention of legislatures." "The question is therefore one of public policy, and the public is entitled to know all the points bearing upon it," and "first in importance" among these points are the several advantages and drawbacks of the four systems. The contract system which is most prevalent in America secures the "constant employment of the convicts, the best remunerative results, and the avoidance of business risk on the part of the State." But it brings convict labor into competition to the disadvantage of free labor, and it offers hindrances to reformatory efforts. The piece-price system, on the other hand, is not open to this last objection, but it—almost equally with the contract system—gives rise to injurious competition. The public-account system is not open to either of the two objections, but it involves the State in business risks. The lease system in the last place has obvious disadvantages and few advantages. In view then of these varying considerations, some reformers advocate the entire abolition of convict labor, others the establishment of a penal colony, others the employment of prisoners upon public works, others again their employment in manufacturing goods for Government, others the exportation of the products of their labor, or the stamping of them as "prison-made" goods, others the payment of wages to the convicts or the reduction of their hours of labor, and others various other plans. The one definite conclusion is this—that "labor is more thoroughly interested in securing the absence of crime and of the criminal than in the question as to how the criminal shall be employed," and the agitators about convict labor have rendered a real service by bringing this question to the front. In Part II there is a valuable account, which is nowhere else to be found "embodied in any single work," of the "economical employment of criminals in different countries and at different periods in the history of the world;" and the volume concludes with a thorough examination of the various convict-labor laws in the United States. In fact the book is an exhaustive treatment of an important question. It satisfies the requirements at once of practical usefulness and theoretical exactness. And it is only part of the work performed by the bureau during the year.

Jahrbuch für Gesetzgebung, Verwaltung und Volkswirthschaft im Deutschen Reich. (Zehnter Jahrgang.) Herausgegeben von Gustav Schmoller. Leipzig: Duncker und Humblot, 1886.

The periodical publication of such a volume as this is a fact which is fraught with the greatest encouragement to economic and statistical students. It is no slight achievement to issue from time to time such a bulky volume; and so much might be said if we looked to the quantity of the material contained alone. The four parts of which this year-book consists comprise between them some thirteen hundred pages of matter, which is to a large extent closely printed in small but clear type; and the fact that this amount of space has been devoted to the treatment of economic and statistical subjects is calculated of itself to arrest the attention and to stimulate the expectation of the student. Nor is he likely—as those who are acquainted with former editions of this economic annual can readily assure him—to be disappointed when he presses his examination into the quality of the subject-matter. He will find that the topics discussed are of a very varied character, and cover a large part of the area embraced by economic and statistical inquiry. He will find that these different topics are discussed, some at greater and some at less length; but that with scarcely a single exception they are treated with no inconsiderable amount of critical acumen and industrious care. In this volume, for instance, he will find the editor himself continuing his elaborate detailed examination of the economical politics of Frederic the Great and of Prussia in general throughout the century extending from 1680 to 1786. He will find him conducting a minute investigation into the political (pp. 1—45), the financial (pp. 325—373), and the economic (pp. 675—727) administration in general of the Duchy of Magdeburg during this period. He will thus be presented in this series of articles with a valuable illustration of the methods and the utility of economic history. And if he desires to turn his attention to questions of a more immediate and practical bearing, he will discover that Dr. Schwartz discusses the position of justice in Prussia (pp. 769—801); that Dr. Rümelin treats of the somewhat kindred topic of the reform of legal education (pp. 1097—1107), and M. Jastrow of the publicity of judicial proceedings (pp. 1109—1134). Nor are studies of detail neglected, for Dr. Mehner describes the working of a factory at Leipzig and the manner of flaying for manure (pp. 803—837); and Dr. Buchenberger furnishes a first instalment of an examination into the practical results of the growth of agriculture in Baden (pp. 1025—1096). Controversial questions again of burning interest find also a place in the pages of the book. Socialists are supplied with food for reflection in an article on the character of the programme put forward by the social democratic party in Germany (pp. 215—222); and currency theorists may read Professor Lexis's investigation of the conditions of production of the precious metals (pp. 173—222), and Professor Struck's discussion on the English and the international money-market (pp. 127, 375, and 865). Indeed as in the case of the article we have just mentioned the contributors to the volume go very far afield. They do not confine themselves to Germany and to German topics alone. They investigate the charitable boards of Russia (pp. 729—767), the public revenue of Italy (pp. 925—948), the reports of Austrian trade for the years 1884-85 (pp. 1135—1153), the proceedings of the Penitentiary Congress at Rome (pp. 839—854), and the present literature on the State-law of all nations (pp. 949—971). And this last subject leads us to mention that one conspicuous feature of the year-book is the number and thoroughness of the notices it contains of economic and statistical publications. In each then of the four parts we have first the longer articles; to these succeed smaller contributions on various points, and these are in their turn followed by the notices of current literature to which we have just alluded. The book in fact worthily fulfils the character of an economic and statistical periodical; and although the student, if he had time, might find it well worth his while to read all or nearly all the articles contained, yet he is also able to select those which more immediately concern his peculiar branch of study, and the area covered by the book is so extensive that however specialised his branch may be, he is almost certain to find something which will repay his perusal. When such year-books as this cease to be written and published we may despair of the cause of statistics; but so long as the contrary is the case we can point an opponent to a tangible and conclusive proof of the vitality of our studies, and we can hold out to a fellow-student an irresistible motive to the cheerful and zealous prosecution of statistical and economic research. The articles we have mentioned by name may serve as a sample—though by no means a complete sample—of the amount and the quality of the material to be found in this volume; and the volume is, we must remember, but one of a series—a series which is likely, unless we are drawing a fallacious inference from the facts before us, to be marked in its successive stages by improvement and not by decline.

Letters of David Ricardo to Thomas Robert Malthus, 1810-23. Edited by James Bonar. Oxford: Clarendon Press, 1887.

Mr. Bonar has rendered a very great service to economic study by the publication of this valuable and interesting series of letters; and students of nearly every shade of opinion will, we believe, be grateful alike to him for the painstaking care he has bestowed, and to Colonel Malthus for his kindness in allowing the public to become acquainted with the correspondence. "The collection covers," we are told, "the whole period of the friendship of the two men," and the "original manuscripts," which have been lent by Colonel Malthus, have fortunately been, with trifling exceptions, preserved "in a complete state." "What is of purely private interest" has, indeed, "as a rule been omitted;" but this is "a very small portion," and the correspondence supplies the reader with abundant material for forming an estimate of the economic attitude and the private disposition of one, if not both, of the two correspondents. Mr. Bonar has discharged his own editorial duties with the conscientious thoroughness conspicuous in his earlier work upon that one of the two correspondents whose letters it has unfortunately been impossible to discover. A note is added wherever explanation seems to be necessary, although, indeed, for the most part, the letters supply their own explanation. A chronicle of the events of the period embraced by the correspondence, together with an excellent index, is appended; and the letters are preceded by a preface, containing a discriminating estimate of Ricardo's character and economic position, and by an outline of the topics discussed. In some few cases a separate continuity can be established between successive letters. In Nos. i—xiv for instance Ricardo is discussing the influence of the depreciation of the currency on the foreign exchanges; in Nos. lxxviii—lxxxviii he treats of the measure of value; and in Nos. lxxi—lxxvii he examines in the main the question of over-production. But, on the other hand, as Mr. Bonar observes, "the discussion of Rent, Wages, and Profits, is not conducted by chapters as in a book;" and "we cannot hope to make the propositions on these three heads fall into a consecutive logical series." The letters, in fact, travel over a very wide area, and the writer touches upon most, if not all, of the points discussed in the current political economy of the time.

There are indeed a few economists who would be inclined, we imagine, to set a very low value upon the work that Mr. Bonar has here executed. They would impatiently deprecate anything that might tend to encourage a return to the exploded controversies and the barren logomachy of the past. But we believe that the careful perusal of this correspondence would go far to shake their belief in the impregnable character of their position. It is almost startling at first to find how very real and important a bearing some of these letters have upon questions of the day. Nor are we without reminders supplied by contemporary discussion and practice that the doctrines which seemed at one time to have finally won their way to public acceptance, may still have to be argued afresh from the very commencement. On both these grounds then it is premature to conclude that we have as yet gathered all that we can from the teaching of the older economists. They may indeed have been confronted by a different set of circumstances from that with which we have to deal. They may not have correctly discerned the limits of the doctrines they were elaborating. Their discussions may, as Mr. Bonar says, "seem to later readers superficial and unreal." "But they had," as he proceeds to point out, "their own work" to do, and "we must not blame them for not answering questions that have only very recently occurred to ourselves," nor must we neglect to gather from their thought and experience all the assistance that we can towards the solution of our own difficulties. Mr. Bonar's volume supplies us with abundant means for accomplishing this end.

And we may learn from it another and a kindred fact which we are sometimes tempted to neglect. We may learn that controversy is not necessarily sterile of results. It is true that the differences between Ricardo and Malthus were not removed by correspondence. But it is equally true that they were narrowed and defined; and, firmly as they adhered to what they respectively held to be correct, they yet learnt through the medium of this correspondence to appreciate some of the merits of opposing arguments, and to supply some of the necessary qualifications to their own opinions; and they discovered that their points of agreement outweighed their points of difference. They were also enabled in more than one case to state explicitly in the letters what had been implicitly contained in their published writings; and, if we may argue from the result of this process as applied to Ricardo, we may conclude that the candid reader of the letters of Malthus might have been compelled, more than once, to revise the estimate he had formed of that economist from his publications alone. We can see from this correspondence in what lay the strength and in what lay the weakness of the two economists, and we can see how clearly Ricardo at least perceived his own failings. Malthus was too "practical," but he himself was too "theoretical." "He was fonder," Mr. Bonar points out, "of imagining strong cases to elucidate a principle than of adducing actual incidents to establish it." "My speaking," he remarks himself, "is like my writing, too much compressed. I am too apt to crowd a great deal of difficult matter into so short a space as to be incomprehensible to the generality of readers." But in the letters he is able to present "writ large" what is only "writ small" in his published writings. Here he explicitly states the qualifying considerations which were indeed present to his own mind, but which he did not make sufficiently real to the minds of his readers. And hence those students who, without reading Ricardo, have learnt to denounce "Ricardian" doctrines which Ricardo himself never uttered, and those students also who have indeed not been content to repeat the vulgar misrepresentation, who have believed that there have been persons, since the newspaper writer mentioned by Ricardo himself, that have "reported" what they "thought or heard" he said, and have "imputed" to him what he "neither felt nor uttered," but who have nevertheless found that while he is guiltless of many of the charges preferred against him, yet those charges are not entirely unnatural, because he does not take occasion to repeat from time to time the conditions he states explicitly once—both these classes of students may well correct their estimate of his opinions and character by a perusal of these letters. The characteristic and fundamental assumptions of his economics are made to stand out clearly by dint of reiterated explanation; and the conditions and limitations within which he himself considers them to be true, are equally prominent. The theory of rent—on the origin of which, and the respective contributions made towards its elucidation by Ricardo himself, by Malthus, and by others, some interesting light is here thrown—the theory of the international distribution of money, and the indications of a depreciated currency, on which Ricardo finally gained a conspicuous triumph, the theory of wages and profits, so much maligned, and so often misunderstood, are here virtually supplied with their appropriate explanatory notes and appendices. The David Ricardo of the Letters, just as he is more human than the David Ricardo of the Principles, so appears to us to be a more thorough and consistent thinker.

One other point must be mentioned in conclusion. The book supplies a pattern for all time of the way in which writers who have very strong differences of opinion can conduct a controversial correspondence. Indeed the word controversial is a misnomer, and can only be used for want of another. The courtesy with which the letters abound, the kindly relations existing between the writers, the respect entertained by either man for the opinion of the other, the mingled deference and firmness with which either advances his own opinion, the readiness to acknowledge error, the promptitude to recognise merit, the candour, the fairness, and the zeal for truth with which the correspondence is literally brimming over, are beyond praise. Had all economic discussion and argument been conducted in this spirit, it would have been regarded as a necessary stage in the advancement of the study instead of being stigmatised as productive of little else but acrid logomachy. If Mr. Bonar had done nothing more than make the public acquainted with an example of the spirit in which discussion should be carried on, and research prosecuted, he would have had just cause to rest content. But he has, as we have endeavoured to show, done far more than this. As in his work on Malthus he helped to dispel the atmosphere of obloquy and misrepresentation in which one of the great economists had been enveloped, so by the publication of this correspondence he has assisted in the vindication of the authority and character of another.

Die Ernährungs-Statistik der Bevölkerung Ungarns auf physiologischer Grundlage bearbeitet von Dr. Karl Keleti. 182 + 363 pp., 4to. (With numerous coloured diagrams and maps.) Budapest, 1887.

The title of the book shows that this work on the food consumption of Hungary has been prepared in quite a novel way, the only statistician, previous to Dr. Keleti, who has made any attempt to treat the statistics of food consumption on this new system, being Dr. Simler. The author starts on the assumption that it is a fallacy to presume that production plus importation minus exportation is equal to consumption, chiefly it appears on account of the fact that a large proportion of food products is used up in manufactures. Consequently while giving full credit for the laborious work in the direction of ascertaining the consumption of food in various countries by such men as Stephen Bourne, Edward Young, Conrad, Morillon, and others, he considers that on account of the system pursued in every case they have none of them arrived at a proper estimate of the food consumed by the individuals of the peoples under investigation. The manner in which Dr. Keleti has arrived at his figures may be briefly described as follows. He made use of the local tax-surveyors to ascertain from practical observation what food is actually consumed by the people, or to put it more correctly what food is consumed at every meal partaken morning, noon, and night during summer, winter, and days of festival, and this in as much detail as possible. This information also includes accounts of families whose mode of life may be accepted as representative of the surveyor's district. The author then examines the statements of physiologists to fix the necessary proportion, as laid down by them, of albumen, carbohydrates, fat, mineral matter, and water every individual man, woman, or child requires daily for proper nourishment. He then works out from the above data the quantity of the local food consumed by a representative individual, and in doing this allowance is made for the occupation of the individual, and consideration given to the fact of different foods being consumed at different meals. Thus if, for instance, a man partakes at his mid-day meal of a certain quantity of albumen, fat, &c., he will not at his other meals require more than sufficient to make up the physiological total for the day; hence at these other meals he will eat less of those foods, which contain albumen, fat, &c., in superfluity. The results of the author's calculations for the seventy districts are given in the volume before us, the statistical tables of which occupy two-thirds of the book. One of the most remarkable of these results is the light thrown upon the relation of the food in a given district to the number of recruits rejected in such district on account of physical incapacity. Districts in which the least amount of albumen is consumed have the most rejected recruits, and *vice versâ.* The most noticeable of all results is, however, the one that shows that the worst nourished population, fed chiefly on potatoes and barley bread, but living wholly in mountainous country, has the least number of recruits rejected on account of weakness of physique.

The Agricultural Labourer: a Short Summary of his Position. By T. E. Kebbel, Barrister-at-Law. New edition. 271 pp., 8vo. London, 1887.

When Mr. Kebbel published the results of his valuable inquiry in 1870, the position of the agricultural labourer was certainly not one to be envied, but from the evidence now laid before us we judge that it has undergone a very marked change for the better. Whatever may be the causes of this amelioration it is remarkable, if for nothing else, for being simultaneous with increasingly bad times for the farmer and landlord. The author brings forward good evidence to prove that the hardness of the agricultural labourer's lot and the want of house accommodation, are not the factors which produce the wholesale migration of the men to the towns, but rather that this migration is brought about by the spread of ideas due to the Education Act, which Act also in other respects has helped to improve the labourer in every way, although slightly at the expense of the farmer. On the question of the merits and demerits of *grande* and *petite culture*, we believe the author is the first to point out that for a fact there has never yet been made a practical test of the two systems side by side on the like soil and under the same meteorological conditions. Considering the numerous land reformers who have based their plans on the superiority of either of these systems of culture, this fact is worth noticing. There is one quotation on p. 62 which the reader will hardly accept as quite fair. The farmers are said to complain, that "The labourer's chief aim is to obtain the greatest wage for the least possible amount of the worst possible work," for to this very sweeping charge the labourer may easily reply, "The employer's chief aim is to obtain the greatest possible amount of the best possible labour for the smallest wage!" It must be said, however, that Mr. Kebbel deals most impartially with his subject. The present edition of the work is a reprint of the first, with additions bringing the subject thoroughly up to date, and it remains as it was, one of the best books of the kind yet laid before the public.

Fernand Maurice: La Réforme Agraire et la Misère en France. 288 pp., 8vo. Paris, 1887.

Among the numerous schemes which have been put forth by economists, philanthropists, and socialists for the amelioration of the labouring classes, and for the restriction of some of the misery which is said to be so prolific among the poorer populations of the civilised European countries, there appears to be no scheme so fascinating as that of land reform. In England there has probably been no conceivable repartition of the land which has not been seriously put forward at some time or other; and in France very much the same class of proposals is being submitted to the political world. M. Maurice, the editor of *La Terre aux Paysans*, has lately entered the lists with a proposal that as there are 50 million hectares in France with a population of 38 millions, there should at least be 1 hectare per man; and in connection with the scheme he proposes that there should be a land tax levied per hectare equally all round, so that if any wealthy man desire 2 or 3 hectares, he will have to pay for 2 or 3 hectares, irrespective whether the land he occupies be under cultivation or not. As a large proportion of French soil is under forest, the author, who ridicules the idea that forests have any climatological influence, considers they should be grubbed up and their land cleared. The poor people from the towns are to be taught farming, and are to cultivate the soil according to prescribed rules. The above few words convey a fair idea of the outlines of this latest proposed French land reform. In connection with the theories set forth, the reader, in spite of the author's promise in the preface to be thoroughly impartial, is not a little astonished to see the unreasonable, not to say totally untenable, attacks that are continually made on the *bourgeoisie*—that bugbear of modern continental radicals. In a word it is the *bourgeois* who is responsible for all the misery, for has he not appropriated the lands belonging to the people and freed in 1789, and does he not impose the taxes, and does he not hold the people in slavery? That is the argument which calls forth the reform. Among some of the curious statements of the author may be mentioned one, namely, that the masses do not envy the Rothschilds, or similar wealthy persons, their fortunes, as they only want to live with a little more comfort, and, another, namely, that the people are opposed to public works, as the money for the same is squeezed out of their pittances by the taxes; and finally, his argument, that because France does not grow sufficient wheat for consumption, this fact is in itself sufficient proof that those who farm her soil do not know their business, and hence the further necessity for the reform.

X.—*Additions to the Library.*

Additions to the Library during the Quarter ended 31*st December*, 1887, *arranged alphabetically under the following heads:*—(a) *Foreign Countries;* (b) *India, Colonial and other Possessions;* (c) *United Kingdom and its several Divisions;* (d) *Authors, &c.;* (e) *Societies, &c.* (*British*); (f) *Periodicals, &c.* (*British*).

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Estadistica del Comercio y de la Navegacion de la República Argentina correspondiente al año 1886. Diagram, la. 8vo.	The Statistical Bureau
Senado Argentino. Arrendamiento de las Obras de Salubridad de la Capital. Discurso pronunciado por el Dr. Eduardo Wilde, Ministro del Interior. 12mo. 1887	
Buenos Ayres—	
Boletin mensual de Estadistica Municipal. Año I, Julio—Setembre, 1887	Statistical Bureau of Buenos Ayres
Bulletin mensuel de Démographie de la Ville de—. VI^{e} année, Juillet—Septembre, 1887	Dr. E. R. Coni
Austria and Hungary—	
Oesterreichische Statistik—	
Band xvi. Heft 2. Statistik der Unterrichtsanstalten 1884-85	The Central Statistical Commission
Band xvii. Statistik des auswärtigen Handels der österreichisch-ungarischen Monarchie im Jahre 1886. Heft 3. Waaren-Ausfuhr. Heft 4. Waaren Durchfuhr	
Hungary—	
Amtliche Statistische Mittheilungen—	
Ergebnisse des funfjahrigen Waarenhandels Ungarns, 1882-86	The Royal Hungarian Statistical Bureau
Fogházaink Allapota, 1872-86	
Statistisches Jahrbuch für Ungarn. 1885, Heft 10. Staatshaushalt im Jahre 1885. 1886, Heft 3. Landwirthschaft im Jahre 1886	
Magyarország Aruforgalma Ausztriaval es mas Orszagokkal. Fuzet 5—7. 1887. (Monthly Trade Returns)	
Budapest. Resultate der am 1 Juli, 1886, durchgeführten Conscription der Bevölkerung Budapest's	The Statistical Bureau of Budapest
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Belgium—	
Annales des Travaux Publics de Belgique. Tome xlv. Cahiers 1 et 2, plates. 1887	The Ministry of Public Works
Bruxelles. Bulletin hebdomadaire de Statistique Démographique et Médicale de la Ville de—. (Current numbers)	Dr. E. Janssens
Hasselt. Exposé de la Situation Administrative de la Ville de—. Exercice 1886-87	The Burgomaster

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Brazil. Rio de Janeiro. Boletim da Mortalidade da Cidade do—, durante o anno de 1886. Diagram, fol.	—
China—	
Imperial Maritime Customs—	
I. Statistical Series, No. 2. Customs Gazette, January—June, 1887, with an appendix giving the Statistics of the Trade of Corea. Nos. 3 and 4. Returns of Trade at the Treaty Ports, and Trade Reports for 1886. Part 1. Report on the Trade of China, and Abstract of Statistics. Part 2. Reports and Statistics for each Port with the Reports and Statistics for Corea .... II. Special Series, No. 2. Medical Reports for the half-year ended 31st March, 1887..........................	Sir Robert Hart, K.C.M.G.
Journal of the China Branch of the Royal Asiatic Society. Vol. xxi. Nos. 5 and 6, 1887. New Series. 8vo.	The Society
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Egypt—	
Bulletin mensuel du Commerce Extérieur de l'Égypte, Ie année. Avril—Juin, 1887	The Director-General of Customs
Compte Rendu des Travaux de la Commission de la Dette Publique d'Égypte pendant 1885. 8vo.	Ernest Clarke, Esq.
Cotton Culture, Agricultural Statistics. (Abstract of information collected with regard to the area cultivated with cotton in 1887.) Fol.	Edgar Vincent, Esq.
Egyptian Statistical Tableau for the year 1886. Compiled and published annually by R. J. Moss and Co. Twentieth issue. Sheet	Messrs. R. J. Moss and Co.
France—	
Annuaire Statistique de la France. Xe année, 1887. 8vo. Statistique de la France. Nouvelle Série, Tome xiv. Statistique Annuelle, année 1884. La. 4to.	The Ministry of Commerce
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Ministère des Finances. Bulletin de Statistique et de Legislation comparée—	
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Octobre. Angleterre—Les Spiritueux et l'Impôt. Le Commerce extérieur du Royaume Uni en 1886. Allemagne—Les Dettes allemandes. Autriche-Hongrie—Le Projet de Budget pour	The Ministry of Finance

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—— Poplar . . . 388–9
—— Tower Hamlets . . . 390–91

Discussion on Mr. Booth's Paper:

Balfour (Dr. T. Graham, F.R.S., Chairman)

Thought that Mr. Booth had stated very well the extreme difficulty of getting accurate statistical information upon the questions which he had discussed. One great difficulty must arise from there being no defined line between the different occupations, and one occupation and one class of society shading into another . . . 392

Marshall (Professor A.)

Said that economists were accustomed to be charged, as they had been by Mr. Booth, with confining their attention to abstract reasoning, and paying little attention to the real facts of life. Speaking as an economist, he would return good for evil, and say that it would be difficult to conceive a paper of more absorbing interest to economists than that which had just been read; and he believed that the information contained in the paper was one of the most valuable presents which the economists had had, and that when the work was verified and completed it would take a unique position among the materials out of which their science was being built up 392–4

Levi (Professor Leone)

Such papers as this were required from time to time. Persons were in the habit of taking large views of the population of the United Kingdom and of the world, and sometimes failed to take narrow and exhaustive views of things near at hand. It was well to remember that whatever might be the proportion of poverty which was indicated, it was confined to a very small section of the general community. He wondered whether the paper gave an accurate idea of the word "poor." Who was a poor man? It would be of great value if Mr. Booth would add as an appendix budgets of the income and expenditure of as large a proportion as possible of the classes with whom he dealt . . . 394

Craigie (Major)

In the year 1844 a very important committee appointed by the Statistical Society, with Mr. Hallam as president, endeavoured to ascertain the condition of the poorer classes in St. George's-in-the-East, as a typical metropolitan parish. To aid the inquiry, which was, he believed, a house to house one, in the area to which it extended, money was contributed by gentlemen outside, and also from the funds of the Society. That investi-

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BOOTH (Charles). *Discussion on his Paper—contd.*

Craigie (Major)—*contd.*

gation went to the very point which Professor Levi had referred to, namely, the proportion of the expenditure of the families to the earnings of their heads, and particularly the expenditure in house rent. It had occurred to him that the information now given to the school board visitors was not to be relied upon. In many districts these visitors were not always welcome, and the answers given to them might be given with an obvious purpose, and this to a sufficient extent to impart a bias to any statistical conclusions resting on the data thus collected as to the financial condition of the parents visited. It was not too much to hint that there might thus be an element of possible suspicion with regard to this information . 395-6

Heckford (Mrs.)

Had been working for some time in connection with the Working Women's Co-operation Association, with the idea of promoting a rise in the wages of working women. She wished to corroborate one remark which had been made by Mr. Booth, and that was that a very great deal of the want in London arose from the physical unfitness of the workers . . 396-7

Bourne (S.)

Thought that what they wanted was not so much an extension of the paper, as an independent investigation starting from different bases, and following different directions, with a comparison of results. If they could make a moral division of the community, they would arrive at data which would throw a great deal of light upon the causes of the conditions set forth in the paper. Then, side by side with that, they needed an inquiry into the expenditure of the people 397-8

Longstaff (Dr. G. B.)

The ultimate sources of the information were liable to fallacy. All information had to come ultimately from individuals, and individuals were all fallible, school board visitors amongst the number. On the whole he thought that the social condition of the people was likely to be described by the school board visitors as worse than it really was, as regarded not only the disreputable classes, but the disreputable members of all classes. Probably as regarded the more respectable classes the reverse might be the case, and the visitors might often think that people were better off than they really were 398-9

Prendergast (Col. L.)

As a representative of the Tower Hamlets on the school board, was glad to corroborate Mr. Booth as to the sources of information relied on . . 399-400

Fordham (E. K.)

Referred to the attraction of labour to London, and the administration of the poor laws 400-401

Booth (Charles), reply:

Was conscious of the imperfections of his paper, and after dealing with some of the criticisms, expressed his thanks for the discussion on it . . 401

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  - Scope of the paper 86
  - States usually learn how their surface is cultivated in two ways: (1) From official registers compiled for taxation purposes; or (2) By direct inquiry 87
  - Divergence in Government returns 88–9
  - Inquiry as to holdings in 1885, with *tables* showing number and classification 90–91
  - Geographical distribution of holdings shows in the eastern and north-eastern counties an acreage of 6,183,000, held by nearly 89,000 occupiers, the average size of the holding being thus 69½ acres. In the east-midland and south-eastern counties an acreage of 6 millions, cultivated by 83,000 occupiers, whose average holding is 70 acres. In the west-midland and south-western counties, the occupiers are more numerous, and the average holding is not quite 58⅓ acres, while in the northern and north-western counties 134,000 farmers are working 6,500,000 acres, with an average holding of 48¾ acres. The mean for all England is 60 acres, for Scotland the same, while in Wales the general average falls below 47 acres. *Table* and *map* . . 92
  - Comparative size of holdings considered. *Table* 93–4
  - In 294,729 holdings under 50 acres, there are 3,559,000 acres; in 115,525 holdings between 50 and 500 acres, there are 17,899,000 acres; and in 4,696 large holdings over 500 acres, there are 3,434,000 acres . . 95
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  - The later inquiry of 1873 gives somewhat different results, *map* . . 111
  - Figures given by M. de Lavergne and M. de Foville show that the small properties under 5 acres cover only a tenth of the surface . . . 112
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There is a special form of *petite culture* in Sweden, whereby small plots called "torps," about 180,000 in all, are let to labourers, who pay rent not in produce or money, but in labour; one to three working days a week, and certain extra work by women at harvest, being the usual terms . 119
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Discussion on Major Craigie's Paper:

Cohen (Lionel L., M.P., Chairman)

Before the paper was read, announced that the Society was now a Chartered Society, and entitled to call themselves the Royal Statistical Society . 143

Druce (S. B. L.)

The conclusions at which the author of the paper had arrived were entirely in unison with his own. Allotments were more numerous in the midland, or rather in the eastern midland counties; but that fact appeared to him to arise not so much from the geographical position of those counties, as from the fact that the agriculture in them was strictly arable, and not pasture. Where the land was mainly arable, there they would find allotments predominate; where, on the contrary, there was not much arable land, but grass, and hills, they would find very few allotments. He referred in conclusion to the different customs that prevailed throughout England . 143–5

Onslow (Lord)

Facts that had come under his own notice entirely bore out the remarks of the author of the paper. He thought that landlords were most anxious to have on their estates holdings of every size and class, and believed that there was room for a considerable increase of small holdings . . 145

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CRAIGIE (P. G.). *Discussion on his Paper—contd.*

Harris (W. J.)

Believed that the number of small holdings or allotments was underrated by the Government returns 146

Bourne (S.)

Described his experiences in Jamaica, and said that they should encourage wage earners to have a piece of land on which to employ their leisure . 147

Hamilton (R.)

Thought that the lesson to be learnt from the paper was the manner in which the statistics were rendered, as it helped those who were interested in the subject 147–8

Cohen (L. L., Esq., M.P., Chairman)

Considered the discussion a most valuable one. Among the more salient points specially worthy of attention, was the point that the unit of cultivation did not in any way represent the unit of agricultural holdings. The next important point was the statistical returns, improved as they had been, still failed to account for the whole of the area under cultivation, and also failed to distinguish in respect to a large tract of country between the land which was cultivated and uncultivated 149

Craigie (Major), reply:

He had little criticism to meet, as most speakers had accepted his figures without challenge. Referring to a point mentioned in his paper, he appealed to the authorities to have one unit for all purposes, whether of rating, taxation, or occupation 149

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—— C. Statement showing the gross value assessed to income tax (Schedule A), the deductions allowed from assessments, the net amount chargeable to income tax (Schedule A), and the estimated net value of lands and buildings in England and Wales, 1882-83 . . . 298

—— D. Statement showing the amount of tax chargeable respectively on the gross values assessed, and estimated net values of lands and buildings respectively, with the excess of charge and the rate in the £ of the estimated net value of the tax chargeable 299

IV. The land tax 300

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ELLIOTT (T. H.). *Annual Taxes on Property and Income—contd.*

Table E Statement of the gross value of property assessed to income tax (Schedule A) in each county, in order of proportion of agricultural population, with the percentage difference between the gross estimated rental and rateable value of the poor rate, the estimated net value of property assessed to income tax (Schedule A), the amount of income tax charged at 8*d.* in the £, the amount of land tax (including tax redeemed), the total taxation under the two previous heads, and the rate in the £ on the net value of property 302-3

VI. The assessment of the profits of occupiers of land 305

Table F. Statement showing the nominal amount chargeable to income tax (Schedule B), and the profits assumed by law to arise from the occupation of lands in England and Wales, in each year ended 5th April, from 1876 to 1885. The amounts stated in millions sterling 305

VII. The assessment of government securities 307

Table G. Statement showing the amount of profits assessed under Schedule C on dividends from British Indian, Colonial, and foreign government stocks, for the years 1872, 1876, 1880, and 1883 307

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Table H. Statement of the proportion per cent. of duty charged under each schedule of the income tax, as compared with the total amount charged to income tax, in each of the three years 1868, 1876, and 1884 . . 307

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—— L. Statement showing approximate effect upon each schedule of the income tax, of the assessment of property chargeable under Schedule A upon the basis of net value 310

—— M. Statement showing approximate effect upon each schedule of the income tax, of the assessment of property chargeable under Schedule A upon the basis of net value, and of the allowance of a deduction of one-third from industrial earnings 311

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Table N. Statement of the gross receipt by the inland revenue department, and the percentage of charge of collection of that department to the gross receipts 313

XIII. Conclusion 315

Discussion on Mr. T. H. Elliott's Paper:

Rawson (Sir Rawson W., K.C.M.G., C.B., Chairman)

Said they were all familiar with complaints against the income tax, but no one had succeeded in satisfactorily explaining the nature of its inequalities, and the injustice inflicted upon particular classes by its incidence. Mr. Elliott, with a perfect knowledge of the facts, had laid before them tables and deductions which would no doubt command the careful attention of all persons in that branch of financial administration 316

Hendriks (F.)

Considered that it would be a mistake to treat the land tax upon the supposition that it could be rightly considered as one of the special burdens on real property. It is really not a tax at all, but an hereditary rent charge. The land tax quotas were nothing more than a substitute for the Saxon and Norman hydage, scutage, knightage, tollage, or other statutory contributions, from real and personal property for the defence of the State. They were the commutations into money payments of the more ancient and onerous burdens of feudal personal attendance and service, or of contributions in kind, for the military defence of the country . . 316

Ramsden (R.)

Said that as a matter of fact all the feudal charges were abolished in the reign of Charles II, and the land tax was not imposed until the reign of William III. Therefore there was a gap which prevented the land tax being the legitimate descendant of the old feudal dues. At the same time that the land tax was imposed, there was also a tax upon properties of all sorts, but that impost had been judiciously evaded by those who had the property, which shows the wisdom of evading liabilities, lest they be afterwards considered a rent charge 317

Garnett (F. B., C.B.)

In regard to the land tax, the question was complicated by the power of redemption which was introduced in 1798, and under which nearly a half of the original land tax had already been redeemed, so that out of 1,900,000*l.* which was the original quota, only about 1,000,000*l.* now remained chargeable. On more than one occasion he had had to consider the effect of

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ELLIOTT (T. H.). *Discussion on his Paper—contd.*

Garnett (F. B., C.B.)—*contd.*

Mr. Hubbard's proposals with respect to the assessment of income tax, and one difficulty that he felt in agreeing to the suggestion that the income tax under Schedule A should be taken upon the rateable value, was that no machinery existed for arriving at a rateable value. He sympathised very much with the proposal that if possible they should not tax property in respect of anything beyond the net income; he should be very much inclined to adopt the view that certain deductions should be allowed to cover the expenses of repairs and other outgoings in respect of property, and that the tax should be charged on something equivalent to what is known as the rateable value 318–21

Bailey (A. H.)

Considered it a source of danger to the State that though 20 per cent. of the revenue was derived from income tax, that tax was levied on a small proportion only of the whole community. He thought that some distinction should be drawn between incomes derived from property and those got by personal exertions 321–2

Craigie (Major)

The tendency to which Mr. Elliott had so opportunely called attention, to treat the income tax as the only flexible one, augmented the anomalies of taxation. The income tax was intended no doubt to reach the richer part of the community, but he quite agreed with Mr. Bailey that its facility of imposition had been abused by recent chancellors of the exchequer. The statesmen of the day seemed to lay heavier burdens and a larger share of the cost of government actually on the classes whose share in the direction of the national policy was at the same moment being steadily diminished 322–4

Bourne (S.)

The taxation levied upon property was on the principle that a certain proportion of that which was created became the property of the State which protected the creation of the money; but in the case of the income tax a large proportion of the income on which it was paid was no creation at all; it was rather a charge on the distribution of that which had been created, so that the tax was paid three or four times over by successive recipients of that which came originally from but one source 324

Leakey (J.)

Suggested the graduation of the income tax as in Switzerland . . 325

Janson (F. H.)

Drew attention to the extent of the redemption of land tax by persons who were strangers to the property charged 325

Elliott (T. H.), reply:

He had noticed that those who regarded the land tax simply as a rent charge, had always been the most anxious to remove the hereditary privileges of land. As regards the observations of Mr. Leakey, he could only say that he entirely adhered to the opinion he had expressed, "that any attempt to aggregate in all cases the income arising from various sources, but accruing to each individual," would be a failure, and that no system of graduation would be possible under such an arrangement . . . 325

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ERRATUM in part 1, vol. l, of the *Journal* at p. 160, line 17 from bottom—

For $\frac{w_1}{w_1}$, &c., read $\frac{w_1}{w_2}$.

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Census reports do not afford means for classifying population according to social position, but Dr. Grimshaw has attempted to supply the deficiency for Dublin 265
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—— VIII. Annual rate of mortality under two years of age from several diseases in various classes of the population during the three years 1883-85 (Dublin) 285

Discussion on Mr. N. A. Humphreys's Paper:

Graham-Balfour (Dr. T., F.R.S., Chairman)

Said that the paper was an important one, because upon such facts as those brought forward in it must be based the sanitary work intended to reduce the rate of mortality of the population. Without accurate statistics of the causes of death in different classes, it would be impossible to know what remedies ought to be applied 285

Bailey (A. H.)

Distrusted the statistics as to Dublin, and thought division into classes most arbitrary 285

Lawson (R., LL.D.)

Mortality in Irish towns very high 286

Neison (F. G. P.)

Said that one point strongly brought out by the paper was the necessity of being extremely cautious in drawing deductions from different rates of mortality, without first of all carefully examining that the facts were on precisely the same footing. He was very much surprised to hear Mr. Humphreys's statement that there did not exist any satisfactory mortality statistics for the working classes of this country. Both the Foresters and the Odd Fellows, each body comprising over 600,000 members in this country alone, had on more than one occasion gone very carefully into the statistics of their mortality and sickness. Thought that the Registrar-General of births, deaths, and marriages would render a public service to the country if in his reports he would lay stress upon the principles on which a comparison was to be made of the rates of mortality between one town and another, and one occupation and another. . . . 286-9

Hamilton (Rowland)

The question how far the rural population represented a selected population ought to be borne in mind in making comparisons between town and country 289

Edmunds (Dr. James)

Urged that it was essential now-a-days to preface the study of the death-rates of a particular town by some outline of the geology and character of its site, its climatic conditions, its water supply, and the occupations and habits of the people 289

Paul (H. Moncreiff)

Said Mr. Humphreys's paper, valuable though it was, must be regarded as merely suggestive, and agreed with Mr. Bailey that it was rather a dangerous thing to generalise from the statistics given with regard to Dublin, as to what might be the state of things in Great Britain generally. 290

Doxsey (Rev. I.)

Thought comparison of Dublin with other towns unfair 290

Bourne (S.)

The upper classes were more shielded from contagion, and better cared for in childhood, and consequently it was only natural to expect a larger death-rate among the poorer classes. There was always an element of great doubt connected with the experiences of such societies as the Foresters and Odd Fellows, because it was never known how many persons left them. Many left through poverty, and others were thrust out 290-91

Humphreys (N. A.), reply:

To a certain extent he agreed with Mr. Bailey's objection to Dr Grimshaw's statistics, but if no attempt was made to obtain statistics in that and other directions, there could be no statistical progress. Mr Bourne thought that there was a possibility of persons dropping out of an occupation, and so affecting Dr. Grimshaw's tables; but if, for instance, barristers when

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HUMPHREYS (Noel A.). *Discussion on his Paper—contd.*
  Humphreys (Noel A.), reply—*contd.*
    they ceased to practise called themselves "gentlemen," the change would appear in the census schedules as well as in the death register, and therefore would not affect the calculations 291–2

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JEANS (J. S.). *Remarks* in discussion (Price on Sliding Scales) . 76–7

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—— VI. Showing the strength, deaths from all causes in the service, and half the men discharged with phthisis among the troops in the United Kingdom; also the percentage of the total mortality due to phthisis at the undermentioned periods 488

Discussion on Dr. Lawson's Paper:

Rawson (Sir W. Rawson, K.C.M.G., C.B., Chairman)

Said that not very long ago a paper was read by Mr. Humphreys showing how the length of life among the civil population had increased during the last quinquennium, and he thought they were now very much indebted to Dr. Lawson for bringing out the fact that there had been a general decrease of the fatal influence of phthisis both in the civil population and the army 489

Longstaff (Dr. G. B.)

Said the subject was one of extreme intricacy and difficulty. Some time ago he was asked to write upon it, but on looking into the matter he came to the conclusion that the difficulties were altogether too great for him to deal with. He therefore respected the great courage of Dr. Lawson who had taken in hand such a gigantic business. He was not prepared to endorse all the deductions that had been drawn from the figures, mainly because he thought that the foundations upon which they were built were somewhat uncertain 489–90

Galton (Captain Douglas, R.E.)

Said he was not prepared to speak on the paper, as it was one which contained much matter, and which required much examination; but he certainly was somewhat surprised at its very sweeping conclusions, that the sanitary improvements which were introduced into barracks in consequence of the efforts of Lord Herbert of Leigh, had not been so effectual in diminishing phthisis as they had commonly been considered to be . 490–91

Marston (Deputy Surgeon-General)

Said that if the deductions and propositions that Dr. Lawson had put forward were true, he had altogether abolished the *raison d'être* of the sanitary and statistical officers of the War Office; while if the propositions were false, the statistical part of the paper went to the wall 491–2

Lloyd (Dr. W. H.)

Said that in the navy the death-rate from phthisis had considerably gone down during the period referred to in the paper 492

Dickson (Dr. W.)

He himself was connected with the navy for twenty-one years, and phthisis was then undoubtedly prevalent among seamen serving in England, but when they were at sea abroad, the fatality among them was very little as compared with the civil population of this country. The Contagious Diseases Acts had had a considerable share in diminishing the amount of phthisis. Now that the Acts were abolished, it would be found that not only venereal diseases but also phthisis would increase in an astonishing way. 492–3

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Lawson (Robert, LL.D.). *Discussion on his Paper—contd.*
  Lawson (Dr.), reply:
    Explained that he had in his paper attributed the reduction in phthisis mortality as partly due to improved sanitation; and after dealing with other criticisms, said that so far from decrying sanitary measures, he was a strong supporter of them, but he differed from Captain Galton as to the degree of beneficial influence attributable to ventilation . . . 493–4

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Explanation of the variations in the monetary standard . . . 150
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The inquiry into the variations in the value of the monetary standard is by far the most important problem in economic science . . . 152
In discussing variations in the value of the monetary standard, two kinds of inquiries of a very different nature are usually blended together, which it would be much better to keep distinct. In the *first* place we have the observation and classification of prices and the measurement of the rise or fall observed; and a *second* kind of inquiry implied in the general expression which is still more difficult and complex, namely, the discovery of causes, for it is only when the causes have been estimated that any idea can be formed as to whether the variations are likely to be temporary or prolonged, or whether, by any action of government or individuals, they may be reversed or modified 153
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Discussion on Mr Price's Paper:

Foxwell (Professor, Chairman)

Before the reading of the paper, made some introductory remarks on the work in which Mr. Price had been engaged, and said that it was with great interest that he welcomed his paper 75–6

Jeans (J. S.)

Quoted a communication from Sir B. Samuelson to the effect that sliding scales need periodical correction, and expressed his own opinion that this was one of the most important industrial problems of the time . . 76–7

Burnett (J.)

Umpires should be carefully chosen, and the best were men unconnected with the special trade. The expense of arbitrations was an important item. Whatever the defects of the sliding scale, it had always been effective, except in rare instances, in preserving peace between employer and employed 77–9

Sidgwick (Professor)

He would call the sliding scale an "invention" rather than a "discovery," as it was a practical expedient, and not an increase in the knowledge of economic laws or facts, and hence what it had to do was to succeed in practice. The point to which a sliding scale should descend might be determined by the best estimate that could be made of the point when a labourer would transfer himself to another industry if his wages fell. Regarding the question in the abstract, he thought that the only principle at once equitable and applicable in the determination of a sliding scale would be this: to take certain rates of wages, prices and any other regular determinants as a starting point, and then aim at such a division of subsequent gain or loss between employers and workmen as would keep the proportion of average wages to profits unaltered, within the limit within which the arrangement would hold together at all, except so far as graduation was introduced to keep wages more stable, as he had before suggested 79–81

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PRICE (L. L. F. R., B.A.). *Discussion on his Paper—contd.*

Munro (Professor)

Thought the sliding scale involved both an invention and a discovery, and it professed to regulate only one aspect of the relation between employers and employed, viz., the amount of wages paid by the one to the other. It was also applicable to the regulation of rents 81–2

Cunningham (Rev. W.)

Sliding scales for wages might be arranged so as to follow the changes in the requirements of the labourer considered as a consumer, or to make them follow the variations in the price of the product 82

Rawson (Sir R. W.)

Explained that Mr. Price's paper was a digest of a still longer one, which would be published by the Toynbee Trustees 82

Foxwell (Professor, Chairman)

Was sure they would all agree with him as to the very high value of the paper; for never before had the subject been so comprehensively discussed. Mr. Price could have done no greater service than that of inviting the attention of the public generally to this question. Personally he must still agree with Mr. Price that the sliding scale system would prove to be a step towards partnership, towards a share in the direction as well as in the profit of the joint industrial undertaking, and as such he welcomed the movement most heartily 82–3

Price (L. L. F. R.), reply:

Thought that the difficulty as to umpires might be met by the re-appointment of men not connected with a trade, so as to enable them by sitting on successive occasions to gain a knowledge of its history and technicalities. He did not think the system of industrial partnerships had had a fair trial. In the future the sliding scale might help towards reconciling trades unionism and industrial partnerships 83

Marshall (Professor A.)

Extract from a letter addressed to Mr. Price, explaining how in his view a sliding scale should be framed 84

Young (Ralph)

Copy of letter addressed to Mr. Price, pointing out the defect in sliding scales as at present formed 85

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Discussion on Mr. Rabino's Paper:

Kennedy (C. M., C.B.)

Considered Mr. Rabino's statement as generally accurate, but he did not entirely agree with the views expressed in the paper on the subject of the *entrepôt* trade 541

Stokes (Sir John, K.C.B.)

Could not undertake to say that all the figures given were correct, but thought that the paper admirably recounted the history of the undertaking. Explained in detail the steps that had been taken to improve the canal from time to time, and to widen it throughout, and generally supplemented the author's remarks 541–3

Price-Williams (R., C.E.)

Dwelt on the importance of widening the canal, and drew attention to a discrepancy in the historical portion of the author's statement. Said that the leading engineers were as far back as 1850 fully alive to the importance of the great work 543–4

Glover (J.)

Agreed that the canal had played a great part in the reduction of prices, but was inclined to think that it would have suited us better had there been no canal 544–5

Stokes (Sir John, K.C.B.)

Remarks explanatory of some points that had been challenged . . 545–6

Rawson (Sir Rawson W., Chairman)

Regretted the absence of M. de Lesseps 546

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HARRISON AND SONS, PRINTERS IN ORDINARY TO HER MAJESTY, ST. MARTIN'S LANE.

ROYAL STATISTICAL SOCIETY,

9, Adelphi Terrace, Strand, W.C., London.

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HIS ROYAL HIGHNESS THE PRINCE OF WALES, K.G.

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(*having filled the Office of President*).

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AN OUTLINE OF THE OBJECTS OF

THE

ROYAL STATISTICAL SOCIETY.

THE *Royal Statistical Society* was founded, in pursuance of a recommendation of the British Association, for the Advancement of Science, on the 15th of March, 1834; its objects being, the careful collection, arrangement, discussion and publication, of facts bearing on and illustrating the complex relations of modern society in its social, economical, and political aspects,—especially facts which can be stated numerically and arranged in tables;—and also, to form a Statistical Library as rapidly as its funds would permit.

The Society from its inception has steadily progressed. It now possesses a valuable Library of more than 20,000 volumes, and a Reading Room. Ordinary meetings are held monthly from November to June, which are well attended, and cultivate among its Fellows an active spirit of investigation: the papers read before the Society are, with an abstract of the discussions thereon, published in its *Journal*, which now consists of fifty annual volumes, and forms of itself a valuable library of reference.

The Society has originated and statistically conducted many special inquiries on subjects of economic or social interest, of which the results have been published in the *Journal* or issued separately.

To enable the Society to extend its sphere of useful activity, and accomplish in a yet greater degree the various ends indicated, an increase in its numbers and revenue is desirable. With the desired increase in the number of Fellows, the Society will be enabled to publish standard works on Economic Science and Statistics, especially such as are out of print or scarce, and also greatly extend its collection of Foreign works. Such a well-arranged Library for reference, as would result, does not at present exist in England, and is obviously a great *desideratum.*

The Society is cosmopolitan, and consists of Fellows and Honorary Fellows, forming together a body, at the present time, of over *one thousand* Members.

The Annual Subscription to the Society is *Two Guineas*, and at present there is no entrance fee. Fellows may, on joining the Society, or afterwards, compound for all future Annual Subscriptions by a payment of *Twenty Guineas.*

The Fellows of the Society receive gratuitously a copy of each part of the *Journal* as published Quarterly, and have the privilege of purchasing back numbers at a reduced rate. The Library (reference and circulating), and the Reading Room, are open daily, for the convenience of Members.

Nomination Forms and any further information will be furnished, on application to the Assistant Secretary, 9, Adelphi Terrace, Strand, W.C., London.

CALENDAR FOR SESSION 1887-88.

1887	MON.	TUES.	WED.	THURS.	FRI.	SATUR.	SUN.	1888	MON.	TUES.	WED.	THURS.	FRI.	SATUR.	SUN.
NOV.	...	1	2	3	4	5	6	MAY	...	1	2	3	4	5	6
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	14	15	16	17	18	19	20		14	**15**	16	17	18	19	20
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	28	29	30						28	29	30	31			
DEC.	...	...	...	1	2	3	4	JUNE	...	...	...	...	1	2	3
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	19	**20**	21	22	23	24	25		18	**19**	20	21	22	23	24
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APR.	...	...	...	...	...	...	1	OCT.	1	2	3	4	5	6	7
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	9	10	11	12	13	14	15		15	16	17	18	19	20	21
	16	**17**	18	19	20	21	22		22	23	24	25	26	27	28
	23	24	25	26	27	28	29		29	30	31				
	30														

The Ordinary Meetings of the Society, at which Papers are read and discussed, are marked in the Calendar above by **Black Figures.**

The Chair will be taken at 7.45 *p.m., precisely.*

These Meetings are now held, by permission of the Committee of Council on Education, in the **Theatre of the Royal School of Mines, 28, Jermyn Street, S.W.**

THE ANNUAL GENERAL MEETING

WILL BE HELD ON THE 26TH JUNE, 1888, AT 4 P.M.

ROYAL STATISTICAL SOCIETY.

Programme of the Session 1887-88.

THE
MONTHLY MEETINGS
ARE HELD ON THE
Third Tuesday in the Months of November—June.

At the Royal School of Mines, Jermyn Street, S.W.
(except November.)

Tuesday,	Dec.	6.	Tuesday,	March	20.
,,	,,	20.	,,	April	17.
,,	Jan.	17.	,,	May	15.
,,	Feb.	21.	,,	June	19.

The following Papers have been read (*Dec.*, 1887) :—

The President's Inaugural Address. "On the Increase of Moderate Incomes." By the Right Hon. G. J. Goschen, M.P. (Delivered 6th December.)

"The Defects of English Railway Statistics." By Sir Juland Danvers, K.C.S.I. (Read 20th December.)

The following Papers have been offered; and from these and from others that may yet be offered, a selection will be made by the Council :—

"Some Canadian Railway and Commercial Statistics." By Joseph G. Colmer, Esq.

"Another Ten Years' Accumulation of Capital." By Robert Giffen, Esq., LL.D.

"National Burdens and their Economic Results." By J. S. Jeans, Esq.

"Progress, Organisation, and Aims of Working Class Cooperators." By Benjamin Jones, Esq.

"The Criminal Statistics of Ireland, 1865-85." By Professor Leone Levi, LL.D.

"Progressive Taxation: Some Examples from Switzerland." By Robert H. I. Palgrave, Esq., F.R.S.

"Some Statistics of Japan." By Russell B. Robertson, Esq., C.M.G., F.R.G.S.

Visitors may attend the Monthly Meetings on the introduction of a Fellow.

ROYAL STATISTICAL SOCIETY,

No. 9, Adelphi Terrace, Strand, W.C., London.

NOTICES TO FELLOWS.

December, 1887.

The Council desire to call the attention of the Fellows to the fact that notwithstanding the change in the name of the Society by the addition of the word "Royal," they are still, in using letters after their names, signifying the membership of the Society, only entitled under Rule 6, to use the letters F.S.S.

Annual Subscriptions are due in advance, on the 1st of January in each year. A Form for authorising a Banker or Agent to pay the Subscription Annually will be forwarded by the Assistant Secretary, on application. When convenient, this mode of payment is recommended. Drafts should be made payable to the order of "The Royal Statistical Society," and crossed "*Drummond and Co.*"

To be included in the Ballot at any particular Ordinary Meeting, the Nomination Papers of Candidates for Fellowship, must be lodged at the Office of the Society, at least six days before the date of such Meeting.

Fellows who may desire to receive Special and Separate Notices of each Paper to be read before the Society at the Ordinary Meetings, should indicate their wishes to the Assistant Secretary.

The Ordinary Meetings of the Society are now held, by permission of the Lords of the Committee of Council on Education, at **The Royal School of Mines, 28, Jermyn Street, S.W.**

The Library is open daily for the use of Members from 10 a.m. to 5 p.m., excepting on Saturdays, when it is closed at 2 p.m., and during the month of September, when it is entirely closed.

Members borrowing books from the Library are requested to be good enough to return them with as little delay as possible, but without fail at the expiration of a month.

Attention is called to "Desiderata"—the List on subsequent pages of Odd Numbers, Parts, and Volumes of Works, wanting in the Society's Library; and the Members of the Society are invited to present to the Library any works at their disposal that may be of a Statistical and Economical Character, whether Tracts, or Pamphlets, or larger works, notwithstanding that they may not be mentioned in the List. Duplicate Copies of Works are in many cases desirable.

Members changing their Addresses are requested to notify the same to the Assistant Secretary, so that delay in forwarding communications, or the *Journal*, may be avoided.

By Order of the Executive Committee.

LIST OF THE FORMER
Patron and Presidents
OF THE
ROYAL STATISTICAL SOCIETY,

Founded 15*th March*, 1834, *Incorporated* 31*st January*, 1887.

Patron.

	Period.
His Royal Highness The Prince Consort, K.G.	1840–61

Presidents.

The Most Noble the Marquis of Lansdowne, F.R.S.	1834–36
Sir Charles Lemon, Bart., M.P., LL.D., F.R.S.	1836–38
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The Right Hon. the Viscount Ashley, M.P. (afterwards Earl of Shaftesbury.)	1843–45
The Right Hon. the Lord Monteagle	1845–47
The Right Hon. the Earl Fitzwilliam, F.R.S.	1847–49
The Right Hon. the Earl of Harrowby	1849–51
The Right Hon. the Lord Overstone	1851–53
The Right Hon. the Earl Fitzwilliam, K.G., F.R.S.	1853–55
The Right Hon. the Earl of Harrowby, K.G., D.C.L.	1855–57
The Right Hon. the Lord Stanley, M.P. (now Earl of Derby.)	1857–59
The Right Hon. the Lord John Russell, M.P., F.R.S. (afterwards Earl Russell.)	1859–61
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The Right Hon. W. E. Gladstone, M.P., D.C.L.	1867–69
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William A. Guy, Esq., M.B., F.R.S.	1873–75
James Heywood, Esq., M.A., F.R.S., F.G.S.	1875–77
The Right Hon. George Shaw Lefevre, M.P.	1877–79
Thomas Brassey, Esq., M.P. (now the Right Hon. Lord Brassey.)	1879–80
Sir James Caird, K.C.B., F.R.S.	1880–82
Robert Giffen, Esq., LL.D.	1882–84
Sir Rawson W. Rawson, K.C.M.G., C.B.	1884–86

LIST OF FELLOWS.

*Those marked thus * have compounded for their Annual Subscriptions.*

The names of Members of Council are printed in Small Capitals.

Year of Election.	
1876	Abrahams, Israel, F.R.G.S., 52, *Russell-square, W.C.*
1883	Ace, Rev. Daniel, D.D., F.R.A.S., *Laughton Vicarage, Gainsborough.*
1862	Acland, Sir Henry Wentworth, K.C.B., M.D., F.R.S., *Oxford.*
1869	Acland, The Rt. Hon. Sir Thomas Dyke, Bart. *Killerton, Exeter ; and Athenæum Club, S.W.*
1879	Adam, Robert (*City Chamberlain*), *City Chambers, Edinburgh.*
1853	*Addington, The Right Hon. Lord, *Bank of England, E.C.*
1867	Addison, John, *Colehill Cottage, Fulham, S.W.*
1884	Agius, Edward Tancred, 90, *Belsize-park-gardens, N.W.*
1886	Ainslie, William George, M.P., 23, *Abingdon-street, S.W.*
1880	Aitchison, David, 5, *Pembridge-square, W.*
1876	Aitchison, William John, 2, *Princes-street, E.C.*
1885	Aitken Thomas, 63, *St. Vincent-street, Glasgow.*
1879	Akers-Douglas, Aretas, M.P., J.P., *Chilston Park, Maidstone, Kent.*
1841	Aldam, William, F.R.S., *Frickley Hall, Doncaster.*
1876	Aldwinckle, Thomas Williams, 2, *East India-avenue, Leadenhall-street, E.C.*
1887	Allard, Alphonse (*Directeur de la Monnaie*), *Brussels, Belgium.*
1876	Allen, John T. R., 13, *York-road, Hove, Brighton.*

Year of Election.	
1875	Allen, Joseph, *St. Mildred's House, Poultry, E.C.*
1877	Allen, Joseph, *West Riding Chambers, Halifax, Yorkshire*
1886	Anderson, Charles John, *Spencer-road, Grove-park, Chiswick.*
1871	Anderson, Sir James, F.R.G.S., F.G.S., 50, *Old Broad-street, E.C.*
1886	Andras, Henry Walsingham, F.I.A., 7, *Queen Victoria-street, E.C.*
1871	Angus, R. B., *Montreal, Canada.*
1884	Anning, Edward James, 78, *Cheapside, E.C.*
1885	Antonio, John, 39, *Dame-street, Dublin.*
1872	*Archibald, William Frederick A., M.A., 4, *Brick-court, Temple, E.C.*
1883	Aschenheim, Gustav, 27, *Mincing-lane, E.C.*
1887	Ashley, W. J., M.A., *Lincoln College, Oxford.*
1884	Ashwell, Henry, *Woodthorpe Grange, Sherwood, Notts.*
1883	Askey, Frederick Day, *The Park, Highgate, N.*
1871	Atkinson, George W., 1, *Regent-street, Barnsley.*
1870	Avery, Thomas, *Church-road, Edgbaston, Birmingham.*
1872	*Babbage, Major-General Henry Prevost, *Yorkleigh, St. George's-road, Cheltenham.*
1872	*Backhouse, Edmund, *Bank, Darlington.*
1879	Baden-Powell, George, C.M.G., M.P., 8, *St. George's-place, Hyde Park Corner, S.W.*
1885	Bagenal, Philip H., 33, *Abingdon-villas, Kensington, W.*
1855	**Bailey, Arthur Hutcheson**, F.I.A., 7, *Royal Exchange, E.C.*
1858	Baines, Sir Edward, *St. Ann's-hill, Burley, Leeds.*

Year of Election.	
1881	Baines, Jervoise Athelstane, C.S., *Dhárwár, Bombay Presidency, India.*
1882	Baker, Captain Daniel, *Avenue House, Hagley-road, Edgbaston, Birmingham.*
1884	Baker, George, 12, *Burwood-place, W.*
1887	Baker, John, 21, *Queen Anne's-gate, S.W.*
1879	Baker, W. Mills, *The Holmes, Stoke Bishop, near Bristol.*
1887	Baldwin, Alfred, J.P., *Wilden House, near Stourport.*
1884	Baldwin, Edmund Chaplin,
1885	Balfe, Richard Ambrose, 2, *Foster-place, Dublin.*
1878	Balfour, The Right Hon. Arthur James, M.P., 4, *Carlton-gardens, S.W.*
1848	Balfour, General Sir George, K.C.B., M.P., D.L., 6, *Cleveland-gardens, Bayswater, W.*
1886	Balfour, Gerald William, M.P., 32, *Addison-road, Kensington, W.*
1873	Balfour, Jabez Spencer, *Wellesley House, Croydon.*
1865	**BALFOUR, T. GRAHAM**, M.D., F.R.S. (*Vice-President*), *Coombe Lodge, Wimbledon-park, S.W.*
1886	Ball, Sidney, M.A., *St. John's College, Oxford.*
1879	Bamber, Edward Fisher, C.E., *Ravenshoe Park-road, Sidcup, Kent.*
1877	Barbour, William Boyle, M.P., *Woodlands, Paisley, and Devonshire Club, S.W.*
1880	*Baring, Thomas Charles, *High Beach, Loughton.*
1886	Barker, W. E., B.A.,
1884	Barlow, William Henry, F.R.S., C.E., 2, *Old Palace-yard, S.W.*
1887	Barnes, Joseph Howard, F.I.A., 1, *Moorgate-street, E.C.*
1885	Barratt, Thomas J., 75, *New Oxford-street, W.*
1887	*Barrett, Thomas Squire, F.Z.S., M.A.I., F.R. Hist. Soc., *New Athenæum Club, Suffolk-street, S.W.*
1883	Barron, Thomas Walter, M.A., M.B., M.R.C.S., &c., 10, *Old Elvet, Durham.*
1878	Barry, Francis Tress, *St. Leonard's-hill, Windsor.*
1873	Bate, George, 75, *Heaton Park-road, Newcastle-on-Tyne.*

Year of Election.	
1877	Bateman, Alfred Edmund (*Secretary*), *Board of Trade, Whitehall-gardens, S.W.*
1876	Baxter, Robert, 6, *Victoria-street, Westminster, S.W.*
1877	Bayfield, Arthur, 95, *Colmore-row, Birmingham.*
1886	Bayly, Alfred, 117, *Powis-street, Woolwich.*
1873	*Baynes, Alfred Henry, F.R.G.S., 19, *Castle-street, Holborn, E.C.*
1871	*Baynes, William Wilberforce, F.I.A., 32, *Moorgate-street, E.C.*
1877	Beadel, William J., M.P., *Springfield Lyons, Chelmsford.*
1875	*Beardsall, Francis E. M., 25, *Booth-street, Manchester.*
1878	*Beauchamp, The Right Hon. Earl, 13, *Belgrave-square, S.W.*
1875	*Beaufort, William Morris, F.R.A.S., F.R.G.S., &c , 18, *Piccadilly, W.*
1883	Beaumont, Henry *Gordon Villa, The Park, Highgate, N.*
1882	*Beazeley, Michael Wornum, 3, *St. Paul's-road, Thornton Heath, Surrey.*
1883	Beckingham, James Horace, 48, *Percy Park, Tynemouth, Northumberland.*
1872	*Bedford, His Grace, the Duke of, *Woburn Abbey, Oakley, Bedford.*
1884	Bedford, James, *Woodhouse Cliff, Leeds.*
1882	*Beeton, Henry Ramie, (6*a*, *Austin Friars, E.C.;*) 9, *Maresfield-gardens, Hampstead.*
1884	Begg, Alexander,
1886	Begg, Ferdinand Faithfull, 6, *Drapers-gardens, E.C.*
1880	Bell, Sir Isaac Lowthian, Bart., J.P., F.R.S. *Rounton Grange, Northallerton, York, N.R.*
1884	Bell, James T., 3, *Great Kelvin-terrace, Hillhead, Glasgow.*
1884	*Bentley, Richard, F.R.G.S., *Upton, Slough, Bucks,*
1884	Berg, Wilhelm, 37, *Mincing-lane, E.C.*
1886	Bernard, Henry Fitzgerald, *Rosslara, Ealing, W.*
1884	Bernard, William Leigh, 1, *New-court, Lincoln's-inn, W.C.*
1874	Bessborough, The Right Hon. The Earl of, *Bessborough, Pilltown, Ireland.*

Year of Election.	
1881	Besso, Marco, *Compagnia di Assicurazioni Generali, Trieste.*
1879	Bevan, G. Phillips, D.L., F.G.S., *Yaldhurst, Lymington, Hants.*
1875	Bevan, Thomas, *Stone Park, near Dartford, Kent.*
1869	*Beverley, Henry, *United Service Club, Calcutta.*
1879	*Bickford-Smith, William, M.P., J.P., D.L., &c., *Trevarno, Helston, Cornwall.*
1886	Biggs, Thomas Hesketh, (*Comptroller*), *Rangoon, Burmah.*
1883	Binney, William, 13, *St. Helen's-place, E.C.; Hillfield, Hampstead, N*
1884	Birch, Robert W. Peregrine, M. Inst. C.E., 5, *Queen Anne's-gate, Westminster, S.W.*
1883	Birchenough, Henry, M.A., 5, *Friday-street, E.C.*
1886	Bird, Stanley, G., 64, *Maida Vale, N.W.*
1881	Bishop, George, 131, *Powis-street, Woolwich.*
1877	Bishop, George Houlton, M.R.C.S., 47, *Argyle-road, Castle-hill, Ealing, W.*
1883	Blades, R. H., 23, *Abchurch-lane, E.C.*
1883	Blades, William, 23, *Abchurch-lane, E.C.*
1884	Boileau, John Peter Hamilton, M.D., &c. (*Surgeon-Major*), *c/o Mrs. Knapp*, 19, *Weighton-road, Anerley, Surrey.*
1881	Bolitho, Thomas Robins, *Pendrea, near Penzance.*
1887	Bolling, Francis, 2, *Laurence Pountney-hill, E.C.*
1880	Bolton, Joseph Cheney, M.P., *Carbrook, Larbert, Stirlingshire.*
1885	Bonar, James, M.A., LL.D., *Civil Service Commission, Westminster, S.W.*
1887	Bond, Edward, *Elm Bank, Hampstead, N.W.*
1885	BOOTH, CHARLES, 2, *Talbot-court, Gracechurch-street, E.C.*
1885	Bordman, Emanuel Linden, *Victoria House, Trinity-street, S.E.*
1879	Bordman, Thomas Joseph Clarence Linden, LL.D., *Victoria House, Trinity-street, Southwark, S.E.*
1881	Bourdillon, James Austin, *United Service Club, Calcutta.*
1881	Bourinot, John George, LL.D., *Ottawa, Canada.*

Year of Election.	
1871	BOURNE, STEPHEN, *Abberley, Wallington, Surrey.*
1886	Bourne, William, *Holford Chambers, Lord-street, Liverpool.*
1877	Boutcher, Emanuel, 36, *Hyde Park-gardens, W.*
1885	Bovell, The Hon. Henry Alleyne, LL.B., *Highgate, Barbados, West Indies.*
1876	Bowen, Horace George, *Bank of England, E.C.*
1887	Bowles, Henry Ferryman, M.A., *Myddelton House, Waltham Cross, Herts.*
1879	Bowley, Edwin, *Burnt Ash-hill, Lee, Kent.*
1886	Boyle, Courtenay, C.B., *Board of Trade, Whitehall-gardens, S.W.*
1883	Braby, Frederick, F.C.S., F.G.S., *Bushey Lodge, Teddington.*
1875	Braby, James, J.P., *Maybanks, Rudgwick, Sussex.*
1886	Bramwell, The Right Hon. Lord, F.R.S., 34, *Cadogan-place, S.W.*
1873	BRASSEY, THE RIGHT HON. LORD, K.C.B. (*Honorary Vice-President*), 4, *Great George-street, S.W.; and* 24, *Park-lane, W.*
1864	*Braye, The Right Hon. Lord, 40, *Grosvenor-street, W.; and Stanford Hall, Rugby.*
1884	Breckon, John Robert, 41, *Fawcett-street, Sunderland.*
1886	Bretnall, William Henry, *Clinton House, Dartmouth-park-hill, N.*
1883	Briesemann, Francis, *Whittington-avenue, Leadenhall-street, E.C.*
1883	Brindle, Thomas, *North Bank, Tunbridge Wells.*
1883	Broad, Harrington Evans, 1, *Walbrook, E.C.*
1887	Brocklesby, Harry Pearson, 9, *Walbrook, E.C., and Clevelands, Stroud-green, N.*
1876	Brodhurst, Bernard Edward, F.R.C.S., 20, *Grosvenor-street, Grosvenor-square, W.*
1883	Brooke, C. B., 16, *Leadenhall-street, E.C.*
1874	Broom, Andrew, A.C.A., 2, *De Crespigny-terrace, Denmark-hill, S.E.*
1878	Brown, Alexander Hargreaves, M.P., 12, *Grosvenor-gardens, S.W.*
1885	Brown, David, 147, *Leadenhall-street, E.C.*

Year of Election.

1872 Brown, James Bryce, F.R.G.S.,
90, Cannon-street, E.C.; and Bromley, Kent.

1875 Browne, Thomas Gillespie C., F.I.A.,
11, Lombard-street, E.C.

1884 Browne, Willis,
Funds Department, India Office, Westminster, S.W.

1886 Bruce, Lord Henry Brudenell, M.P.,
36, Eaton-place, S.W.

1886 *Brunner, John Tomlinson,
Winnington Old Hall, Northwich, Cheshire.

1883 Buck, Sir Edward Charles,
Revenue and Agricultural Department, Simla, India.

1865 Bunce, John Thackray,
Longworth, Priory-road, Edgbaston, Birmingham.

1884 Burbridge, Samuel,

1880 Burdett, Henry Charles,
The Lodge, Porchester-square, W.

1873 *Burdett-Coutts, The Right Hon. the Baroness,
1, Stratton-street, W.; and Holly Lodge, Highgate, N.

1881 Burdett-Coutts, William, M.P.,
1, Stratton-street, Piccadilly, W.

1882 Burgess, John,
Prospect House, Hailsham.

1872 Burns, The Rev. Dawson, M.A., D.D.,

1885 Burridge, Arthur Francis, F.I.A.,
46, Bath-road, Bedford Park, Chiswick

1885 Burridge, Stephen,
Shirle Hill, Sheffield.

1886 Burrows, Abraham, J.P.,
Green Hall, Atherton, near Manchester

1880 Burt, Frederick, F.R.G.S.,
Woodstock, Crouch End, N.

1872 *Burton, The Right Hon. Lord,
Chesterfield House, Mayfair, W.; and Rangemore, Burton-on-Trent.

1886 Bush, W. Ernest, F.C.S.
Thornleigh, Sydenham-hill, S.E.

1883 Bush, William John,
20, Artillery-lane, Bishopsgate street, E.C.

1884 Buxton, Sydney Charles, M.P.
15, Eaton-place, S.W.

1887 Byrne, Edward Simpson, F.S.A.A.,
The Treasury, Calcutta.

Year of Election.	
1880	Caine, William Sproston, M.P., 1, *The Terrace, Clapham Common, S.W.*
1857	CAIRD, SIR JAMES, K.C.B., F.R.S. (*Honorary Vice-President and Trustee*), 8, *Queen's-gate-gardens, S.W.; & Cassencary, Creetown, N.B.*
1880	Caird, Robert Henryson, 6, *Petersham-terrace, S.W.*
1874	Campbell, Sir George, K.C.S.I., M.P., D.C.L., 17, *Southwell-gardens, South Kensington, S.W.*
1877	Campbell, George Lamb, *Market-street, Wigan.*
1879	Campbell-Colquhoun, Rev. John Erskine, *Chartwell, Westerham, Kent.*
1887	Capper, Robert, A.I.C.E., F.R.G.S., *Westbrook, Swansea.*
1881	Carden, Lionel Edward Gresley, *H.M. Consul, Mexico.*
1872	*Carillon, J. Wilson, F.S.A., F.R.G.S., *The Chimes, Richmond, Surrey.*
1887	Carmichael, Charles H. E., M.A., 96, *Eaton-terrace, Eaton-square, S.W.*
1885	Carmichael, Thomas D. Gibson, *Castlecraig, Dolphinton, N.B.*
1886	Carpenter, Frederick, 14, *Sussex-villas, Kensington, W.*
1876	Carphin, James Rhind, C.A., 14, *Hanover-street, Edinburgh.*
1883	Carter, Joseph Robert, 2, *Steeles-road, N.W., and* 14, *King's Arms-yard, E.C.*
1878	*Casley, Reginald Kennedy, M.D., *Northgate-street, Ipswich.*
1885	Casson, William A., *Local Government Board, Whitehall, S.W.*
1880	Castle, Robert, 18, *Merton-street, Oxford.*
1883	Cater, J. J., 39, *Lombard-street, E.C.*
1883	Cattarns, Richard, *Enfield House, Grove Park, Lee, S.E.*
1881	Causton, Richard Knight, 3, *Clanricarde-gardens, W.*
1858	Chadwick, David, *The Poplars, Herne Hill, Dulwich, S.E.*
1834	Chadwick, Edwin, C.B. (*Corr. Mem., Inst. of France*) *Park Cottage, East Sheen, Mortlake, S.W.*
1869	CHADWICK, JOHN OLDFIELD, F.R.G.S., 24, *Budge-row, Walbrook, E.C.*
1884	Chailley, Joseph, 9, *Rue Guy de la Brosse, Paris.*

Year of Election.	
1880	*Chamberlain, The Right Honourable Joseph, M.P., 40, *Prince's-gardens, S.W.*
1886	Chamberlain, Richard, M.P., *Westbourne-road, Birmingham.*
1886	Chapman, Samuel, *Forest Cottage, Whitehall-road, Woodford, Essex.*
1884	Chater, J., *Messrs. Apcar and Co.'s Collieries, Sitarampore, India.*
1851	*Cheshire, Edward, 3, *Vanbrugh Park, Blackheath, S.E.*
1883	Childs, Walter, 16, *Oxford-gardens, North Kensington, W.*
1853	Chisholm, David, F.I.A., 9, *Rillbank-terrace, Edinburgh.*
1886	*Chisholm, George Goudie, M.A., B.Sc., F.R.G.S., 83, *Appach-road, Brixton, S.W.*
1869	CHUBB, HAMMOND, B.A., *Bickley, Kent.*
1849	Clark, Gordon Wyatt, *Mickleham Hall, near Dorking, Surrey.*
1886	Clark, H. J., *Port of Spain, Trinidad.*
1856	Clark, Sir John Forbes, Bart., *Tillypronie, Tarland, Aberdeen.*
1871	Clarke, Ebenezer, *Grove-road, Walthamstow.*
1882	*Clarke, Ernest, F.L.S., 10, *Addison-road, Bedford Park, Chiswick.*
1877	*Clarke, Henry, L.R.C.P., *H.M. Prison, Wakefield, Yorks.*
1856	*CLARKE, HYDE, 32, *St. George's-square, S.W.*
1869	Cleghorn, John, 3, *Spring-gardens, S.W.*
1850	*Cleveland, His Grace the Duke of, K.G., *Battle Abbey, Sussex.*
1853	Clirehugh, William Palin, F.I.A., 66, *Cornhill, E.C.*
1877	Cobb, B. Francis, 79, *Cornhill, E.C.*
1873	Cockle, Captain George, F.R.G.S., 9, *Bolton-gardens, South Kensington, S.W.*
1884	Cockshott, John James, 3, *Tulketh-street, Chapel-street, Southport.*
1887	Cohen, Nathaniel Lewis, 3, *Devonshire-place, Portland-place, W.*
1838	Colebrooke, Sir Thomas Edward, Bart., *Athenæum Club, S.W.*
1859	Coles, John, F.I.A., 39, *Throgmorton-street, E.C.*

Year of Election.	
1887	Collet, Mark Wilks, 2, *Sussex-square, W., and St. Clere, Sevenoaks, Kent.*
1883	Collmann, John S., 12, *Tokenhouse-yard, E.C.*
1882	*Collum, Rev. Hugh Robert, M.R.I.A., F.R.C.I., *Vicar of Leigh, near Tonbridge, Kent.*
1867	Colman, Jeremiah James, M.P., *Carrow House, Norwich.*
1878	Colomb, Captain J. C. R., C.M.G., M.P., R.M.A., J.P., *Droumquinna, Kenmare, Kerry.*
1884	Colyar, Henry Anselm De, 24, *Palace-gardens-terrace, W.; Athenæum Club, S.W.*
1886	Coode, Sir John, K.C.M.G., C.E., 5, *Westminster Chambers, Victoria-street, S.W.*
1884	Cook, Edward Samuel, 60, *Queen Victoria-street, E.C.*
1887	Cooke-Taylor, R. Whately, *Frenchwood House, Preston.*
1843	*Copperthwaite, William Charles, *New Malton, Yorkshire.*
1874	Corbett, John, M.P., 20, *Hertford-street, Mayfair, W.*
1883	Corgialegno, M., 71, *Cornhill, E.C.*
1873	Cork, Nathaniel, F.R.G.S., 18, *Birchin-lane, E.C.*
1878	Cornish, William Robert, F.R.C.S., C.I.E. (*Surgeon General*), 8, *Creswell-gardens, The Boltons, S.W.*
1883	Cosens, Frederick William, 7, *Melbury-road, Kensington, W.*
1862	Courtney, Leonard Henry, M.A., M.P., 15, *Cheyne Walk, Chelsea, S.W.*
1882	Cowen, Charles, *Johannesburg, Transvaal, South Africa.*
1885	Craddock, Joseph, *Oak Lea, Cannock, near Stafford.*
1874	CRAIGIE, MAJOR PATRICK GEORGE (*Secretary*), 6, *Lyndhurst-road, Hampstead, N.W.*
1870	Craik, George Lillie, 29, *Bedford-street, Strand, W.C.*
1878	Crewdson, Ernest, *The Green Hall, Wilmslow, Cheshire.*
1886	Crispin, Edward, 67, *Cornhill, E.C.*
1880	*Crompton-Roberts, Charles Henry. 16, *Belgrave-square, S.W.*
1885	Cropper, James, *Ellergreen, Kendal.*
1883	Cullen, Thomas, F.C.A. 21, *Warwick-street, Regent-street, W.*

Year of Election.	
1887	Culley, George, 2, *Whitehall-place, S.W.*
1875	Cunningham, David, C.E., *Works' Office, Harbour-chambers, Dundee.*
1883	Cunningham, Rev. William, M.A., 2, *St. Paul's-road, Cambridge.*
1884	Curtis, Charles, Edward, *Deanyers, Alton, Hants.*
1879	Curtis, Alderman Robert Laebon, F.S.I., 120, *London Wall, E.C.*
1873	Czarnikow, Cæsar, *Effingham-hill, Dorking, Surrey.*
1886	Dale, David, *West Lodge, Darlington.*
1869	Dalyell, The Hon. Sir Robert Anstruther, K.C.I.E., C.S.I., 21, *Onslow-gardens, S.W.*
1884	Daniell, Clarmont J., *Langley House, King's Langley, Herts.*
1880	Danvers, Frederick Charles, *India Office, Westminster, S.W.*
1873	Danvers, Sir Juland, K.C S.I., *India Office, Westminster, S.W.*
1886	Darrell, Charles, *Sidcup, Kent.*
1885	Davidson, Madgwick Spicer, 28, *Prince's-square, W.*
1869	Davies, James Mair, 75, *West Regent-street, Glasgow.*
1874	Davies, William Henry, 51, *Tregunter-road, West Brompton, S.W.*
1886	Dawson, J. Eugene, *Colonial Secretary's Department, Sierra Leone.*
1880	Debenham, Frank, 26, *Upper Hamilton-terrace, St. John's Wood, N.W.*
1885	De Broë, Emile Conrad De Bichin, *Walden Lodge, College Park, Wandsworth-common, S.W.*
1879	*De Ferrieres, The Baron Du Bois, J.P., *Bay's-hill House, Cheltenham.*
1884	De Jouy, J. Henry B., *La Prefecture, Quimper, Finisterre, France.*
1883	*De Keyser, Alderman P. (The Right Hon. The Lord Mayor), *Chatham House, Grove-road, Clapham Park, S.W., and The Mansion House, E.C.*

Year of Election

1877 Deloitte, William Welch,
4, *Lothbury, E.C.*

1886 Denison, William Beckett,
138, *Piccadilly, W.*

1886 Denman, Arthur Lemoine,
110, *Cambridge-gardens, North Kensington, W.*

1873 Dent, Edward,
Fernacres, Fulmer, near Slough, Bucks.

1887 Dent, George Middlewood,
21, *Sefton-street, Southport.*

1855 *DERBY, THE RIGHT HON. THE EARL OF, F.R.S., D.C.L.
(*Honorary Vice-President*),
St. James's-square, S.W.; Knowsley, Prescot, Lancashire.

1887 De Ricci, J. H.,
Egbury Grange, St. Mary-Bourne, Andover, Hants.

1884 Dethridge, J. Frank,
The Hermitage, Ravenscourt-park, W.

1877 Dever, Henry,
4, *Lothbury, E.C.*

1885 Devonshire, Thomas Harris,
1, *Frederick's-place, Old Jewry, E.C.*

1877 De Worms, Baron Henry, M.P., F.R.A.S.,
Carlton Club, Pall Mall, S.W.

1885 Dibley, Captain George,
22, *Brook-street, Grosvenor-square, W.*

1866 *Dilke, The Right Hon. Sir Charles Wentworth, Bart., LL.M.,
76, *Sloane-street, S.W.*

1873 Dixon, George, M.P.,
The Dales, Edgbaston, Birmingham.

1881 Dobell, Richard R.,
Quebec, Canada.

1875 Doxsey, Rev. Isaac,
186, *The Grove, Camberwell, S.E.*

1878 Doyle, Patrick, C. E., F.G.S., M.R.A.S.,
Messrs. Apcar and Co's. Collieries, Seetarampore, India.

1878 Duignan, William Henry,
Walsall, Staffordshire.

1875 Dun, John,
Parr's Banking Company Limited, Warrington.

1870 Duncan, James,
9, *Mincing-lane, E.C.*

1886 Dundonald, the Right Hon. the Earl of,
50, *Eaton-place, S.W.*

1884 Dunn, Archibald Joseph,
23, *Applegarth-road, Brook-green, Hammersmith, W.*

1878 *Dunraven, The Right Hon. The Earl of, K.P.,
Kenry House, Putney Vale, S.W.

1885 Dyer, William John,
17, *Montpelier-row, Blackheath, S.E.*

Year of Election.
1883 EDGEWORTH, FRANCIS YSIDRO, M.A.,
Savile Club, 107, *Piccadilly, W.*
1836 Edmonds, Thomas Rowe, B.A.,
72, *Portsdown-road, Maida-vale, W.*
1869 Edmonds, William,
Annesley House, Southsea.
1880 Egerton of Tatton, The Right Honourable Lord,
7, *St. James's-square, S.W.*
1872 Elliot, Sir George, Bart., M.P.,
Park-street, Park-lane, W.; 22, *Gt. George-street, S.W.*
1885 Elliot, William Henry,
122 *Mansion House-chambers, Queen Victoria-street, E.C.*
1885 ELLIOTT, THOMAS HENRY,
Inland Revenue Office, Somerset House, W.C.
1885 Elliott, William,
73, *George-street, Edinburgh.*
1877 Ellis, Arthur,
42, *High-street, Highgate, N.*
1886 Ellis, John Edward, M.P.,
40, *Pont-street, S.W., and Reform Club, S.W.*
1873 Emanuel, Lewis,
91, *Gloucester-terrace, Hyde Park, W.*
1877 Emmott, W. T.,
Sherton House, Seymour-grove, Manchester.
1882 Essex, Benjamin Smily,
48, *Pall Mall, S.W.*
1879 Evans, Henry Jones, J.P.,
Brecon Old Bank, Cardiff.
1834 Eversley, The Right Hon. Viscount, D.C.L., LL.D.,
114, *Eaton-square, S.W.; and Winchfield, Hants.*

1875 Faraday, Frederick J.,
17. *Brazenose-street, Manchester.*
1868 Farrell, John Douglas,
Bank of England, West Branch, Burlington-gardens, W.
1878 Farren George, J.P., A.M.Inst.C.E.,
Carnarvon.
1878 Farrer, Sir Thomas Henry, Bart., J.P.,
27, *Bryanston-square, W.; Abinger Hall, Dorking.*
1876 Fearnside, Henry, M.B., F.R.C.P.,
De Vere Mansions West, 34, *De Vere-gardens, W.*
1882 Fell, Arthur, M.A.,
46, *Queen Victoria-street, E.C.*

Year of Election	
1864	Fellows, Frank Perks, 8, *The Green, Hampstead, N.W.*
1884	Felton, George Frederick, 6, *Church-walks, Llandudno, North Wales.*
1887	Fenton, J. J., *Office of the Government Statist, Melbourne, Victoria.*
1885	Ferguson, Ronald Crawfurd Munro, M.P., *Raith, Kirkcaldy, N.B.*
1880	Findlay, George, *London and N. Western Railway, Euston Station, N.W.*
1884	Findlay, James Arbuckle, *Bishops Stortford, Herts.*
1880	Finlaison, Alexander John, C.B., F.I.A., 19, *Old Jewry, E.C.*
1884	*Finnemore, Robert Isaac, J.P., F.R.G.S., &c. *Durban, Natal, South Africa.*
1885	*Fitz-Gerald, Major William George, M.A., *United Service Club, Dublin.*
1882	Foley, Patrick James, M.P., *Pearl Ins. Co., Adelaide-place, London Bridge, E.C.*
1886	Ford, Alfred, 55, *Farleigh-road, Stoke Newington, N.*
1875	Fordham, Edward King, J.P., D.L. *The Bury, Ashwell, Baldock, Herts.*
1841	Fortescue, The Right Honourable Earl, *Castle Hill, South Molton, Devon.*
1884	Fosbery, William Thomas Exham, *The Castle-park, Warwick.*
1885	Foster, John Collie, 37, *Gower-street, W.C.*
1886	Fowler, The Right Hon. Henry Hartley, M.P., *Woodthorne, Wolverhampton.*
1877	*Fowler, Alderman Sir Robert Nicholas, Bart., M.P., *Elm Grove, Corsham, Wilts.*
1868	Fowler, William, 38, *Grosvenor-square, S.W.*
1878	Foxwell, Professor H. Somerton, M.A., *St. John's College, Cambridge.*
1879	Francis, George Edward, *Staunton, Coleford, Gloucestershire.*
1887	Frankland, Frederick William, F.I.A. *Govt. Life Ins. Office, Wellington, New Zealand.*
1883	Fraser, George John, 34, *Leadenhall-street, E.C.*
1886	Fream, Professor William, B.Sc., Lond., F.L.S., F.G.S., *College of Agriculture, Downton, Salisbury.*
1844	*Freeland, Humphrey William, J.P., *Athenæum Club, S.W.; and Chichester.*
1887	Freeman, T., jun., F.G.S., *St. Augustine's, Florence, Stoke-on-Trent.*

Year of Election.	
1884	Frith, Walter Halsted, 69, *Lombard-street, E.C.*
1886	Fuller, George Pargiter, M.P., *Neston-park, Corsham, Wilts,*
1878	Fuller, William Palmer, 50, *Gresham-street, E.C.*

1879	Gairdner, Charles, *Broom, Newton Mearns, Renfrewshire.*
1852	Galsworthy, Sir Edwin Henry, J.P., F.I.A., 18, *Park-crescent, Portland-place, W.*
1873	*Galton, Capt. Sir Douglas, K.C.B., D.C.L., LL.D., F.R.S., 12, *Chester-street, Grosvenor-place, S.W.*
1860	Galton, Francis, F.R.S., F.R.G.S., 42, *Rutland-gate, S.W.*
1887	Garcke, Emile, 21, *Priory-road, Bedford-park, Chiswick.*
1881	GARNETT, FREDERICK BROOKSBANK, C.B., 4, *Argyll-road, Kensington, W.*
1881	Garraway, The Hon. David G., *Castries, St. Lucia, West Indies.*
1879	*Gassiot, John Peter, J.P., *The Culvers, Carshalton, Surrey,*
1883	Gates, Jacob S., 9, *Fenchurch-avenue, E.C.*
1880	*Gates, John Benjamin, jun., A.C.A., 47, *Warwick-street, Regent-street, W.*
1881	*Gatty, William Henry, *Market Harborough, Leicestershire.*
1885	Gibb, George S., *North-Eastern Railway Company, York.*
1872	Gibb, Thomas Eccleston, 16, *Lady Margaret-road, N.W.*
1874	Gibbs, Alban George Henry, 82, *Portland-place, W.*
1871	Gibbs, George Sleight, *Derry Lodge, Darlington.*
1882	Gibbs, Richard, *The Hollies, Weybridge.*
1867	*GIFFEN, ROBERT, LL.D. (*Honorary Vice-President*), 41, *Pembroke-road, Kensington, W.*
1877	Gilbert, William H. Sainsbury, 62, *Old Broad-street, E.C.*
1878	*Glanville, Silvanus Goring, *Lewisham-road, S.E.*

Year of Election	
1860	GLOVER, JOHN, J.P., (*Vice-President*), 88, *Bishopsgate-street Within, E.C.*
1877	Goddard, Frederick Robertson, 19, *Victoria-square, Newcastle-on-Tyne.*
1884	Gonner, Edward C.K., M.A., 12, *Marlborough-place, N.W.*
1877	Good, Alfred, 57, *Moorgate-st., E.C.; Downe Lodge, Beckenham, Kent.*
1886	Goodrich, Harry St. Aubyn (*Calcutta*) *c/o Messrs. H. S. King and Co.*, 65, *Cornhill, E.C.*
1881	Goodrich, Samuel G., 142, *Broadway, New York, U.S.A.*
1885	Goodsall, David Henry, F.R.C.S., 17, *Devonshire-place, W.*
1868	GOSCHEN, THE RIGHT HON. GEORGE JOACHIM, M.P., (*President*), 69, *Portland-place, W., and Seacox-heath, Hawkhurst.*
1855	*Gosset, John Jackson, *Thames Ditton, Surrey.*
1885	Goulding, William Purdham, F.S.I., 41, *Moorgate-street, E.C.; and* 18, *Mercers-road, N.*
1887	Gover, Frederic Field, *Casino House, Herne Hill, S.E.*
1853	Gover, William Sutton, F.I.A., 4, *Queen-street-place, Southwark Bridge, E.C.*
1886	Grafton, Frederick William, *Hope Hall, Manchester.*
1885	Grant, Thomas Rennie, 10, *Harrington-gardens, Kensington, S.W.*
1875	Granville, Joseph Mortimer, M.D., F.G.S., &c., 14, *Hanover-square, W.*
1887	Graves, The Rev. Michael, B.A., *Sir W. Borlase's School, Great Marlow.*
1847	Gray, Thomas, 34, *Fenchurch-street, E.C.*
1886	Green, Oswald R., 7, *Finsbury-square, E.C.*
1881	Greening, William H., *Oakfield Cottage, Balsall Heath, Birmingham.*
1887	Gribble, George J., 25, *Hans-place, S.W.*
1883	Griffin, Josiah, *Vanburgh Park, Blackheath, S.E.*
1868	Griffith, Edward Clifton, 1, *Waterloo-place, S.W.*
1884	Griffith, T. Risely, 39, *Bridge-avenue, Hammersmith, W.*
1883	Grimshaw, Thomas Wrigley, M.D., M.A., &c. (Registrar-General of Ireland), *Priorsland, Carrickmines, Co. Dublin.*

Year of Election.

1886 Grimston, The Right Hon. Viscount, M.P.,
Cell Barnes, St. Albans.

1883 Gunther, Charles,
9, *Fenchurch-avenue, E.C.*

1875 Gunn, Arthur,
31, *Gloucester-road, Gloucester-gate, Regent's Park, N.W.*

1878 Guthrie, Charles,
London Chartered Bank of Australia, Melbourne, Victoria.

1885 Guthrie, Edwin,
Victoria Park, Manchester.

1887 Guyot, Yves, Deputé,
95, *Rue de Seine, Paris.*

1880 *Gwynne, James Eglinton A., J.P., F.S.A.,
97, *Harley-st., W.; Folkington Manor, Polegate, Sussex.*

1887 Gwyther, John Howard,
Hatton-court, Threadneedle-street, E.C.

1884 Haas, Hendrik Christiaan,
32, *Fenchurch-street, E.C.*

1884 Hadley, Joseph,
5, *Argyll-place, Regent-street, W.*

1883 Hadrill, Henry John,
1, *Foley-avenue, East Heath, Hampstead, N.W.*

1873 *Haggard, Frederick T.,
1, *Broadwater Down, Tunbridge Wells.*

1884 Hague, John,
King-street, Toronto, Canada.

1887 Haldeman, Donald Carmichael,
Claremont, Gypsy Hill, S.E.

1869 Hall, James Macalester,
Killean House, Tayinloan, Argyleshire.

1883 Hall, Sir John, K.C.M.G.,
Hororata, Canterbury, New Zealand.

1878 Hallett, Thomas George Palmer, M.A.,
Claverton Lodge, Bath.

1887 Hamilton, Edward W., C.B.,
The Treasury, Whitehall, S.W.

1873 Hamilton, The Right Hon. Lord George Francis, M.P.,
17, *Montagu-street, Portman-square, W.*

1883 Hamilton, James Thomas,
23, *High-street, Southampton.*

1882 Hamilton, John James,
The Grange, Chislehurst.

Year of Election.

1879 HAMILTON, ROWLAND,
Oriental Club, Hanover-square, W.

1887 Hamilton, Thomas, J.P.,
46, *Parliament-hill-road, Hampstead, N.W.*

1884 *Hammersley, Hugh Greenwood,
Sun House, 6, *Chelsea Embankment, S.W.*

1873 Hanbury, Robert William, M.P.,
Ilam Hall, Ashbourne, Derbyshire.

1885 *Hancock, Charles, M.A., Oxon.,
2, *Cloisters, Temple, E.C.; and Reform Club, S.W.*

1869 Hancock, William,
35, *Cornhill, E.C.*

1875 Hankey, Ernest Alers,
Elmhurst, Bickley-park, Kent.

1879 Hankey, Thomson,
59, *Portland-place, W.*

1876 Hansard, Luke,
63, *Lombard-street, E.C.*

1883 Hansell, Robert B.,
Moor Oaks-road, Broomhill, Sheffield.

1885 Harbhamji, Prince, of Morbi,
Rajcoomar College, Rajkot, Kathiawar, Bombay, India.

1871 *Harcourt, Right Hon. Sir William Vernon, Q.C., M.P., F.R.S.
7, *Grafton-street, Bond-street, W.*

1886 *Hardcastle, Basil William,
Beechenden, Hampstead, N.W.

1886 Hardcastle, E. J.,
Oriental Club, Hanover-square, W.

1877 Harding, Colonel Charles, F.R.G.S.,
10, *St. Swithin's lane, E.C.*

1883 Harding G. P.,
5, *Rue de Sauterel, Paris, France.*

1884 Hardy, George Francis, F.I.A.,
5, *Whitehall, S.W.*

1883 Hardy, William Henry, F.C.A.,
5, *Great Winchester-street, E.C.*

1868 Harris, David,
Caroline Park, Granton, Edinburgh.

1882 Harris, Frederick,

1887 Harris, William A.,
Phœnix Chambers, Exchange, Liverpool.

1882 Harris, William James,
75, *Linden-gardens, Bayswater, W.*

1887 Harrold, Leonard F., F.R.G.S.,
29, *Great St. Helens, E.C.*

1884 Hart, James,
19, *Fenchurch-street, E.C.*

1884 Hartel, Adolph,
22, *Arundel-square, Barnsbury-park, N*

Year of Election.	
1870	Hartley, Fountain John, *Gloucester House*, 97, *Cazenove-road, Upper Clapton, N.*
1881	Harvey, Alfred Spalding, B.A., 67, *Lombard-street, E.C.*
1884	Harvey, Thomas Morgan, 1, *Gresham Buildings, Basinghall-street, E.C.*
1876	Hawkins, Alfred Templeton, F.R.G.S., 22, *Budge-row, Cannon-street, E.C.*
1879	Hawksley, Thomas, C.E., F.R.S., &c., 30, *Great George-street, Westminster, S.W.*
1887	*Heap, Ralph, jun., 1, *Brick-court, Temple, E.C.*
1884	Hedley, Robert Wilkin, 31*a*, *Colmore-row, Birmingham.*
1870	Hefford, George V., *Rugby.*
1883	Heilgers, Robert Phillip, 22, *Great St. Helens, E.C.*
1865	Hendriks, Augustus, F.I.A., 7, *Cornhill, E.C.*
1855	*HENDRIKS, FREDERICK, F.I.A. (*Vice-President*), 1, *King William-street, E.C.*
1886	Henshaw, Richard S. 31, *Bedford-street, Strand, W.C.*
1877	*Herbage, William, *London & South Western Bank*, 7, *Fenchurch-street, E.C.*
1884	Herbert, W. E., 69, *Buchanan-street, Glasgow.*
1881	Hewat, Archibald, F.I.A., F.F.A., 22, *George-street, Edinburgh.*
1834	*HEYWOOD, JAMES, M.A., F.R.S., F.G.S (*Honorary Vice-President and Trustee*), 26, *Palace-gardens, Kensington, W.* ; *AthenæumClub, S.W.*
1886	Hibbert, H. F., *Park-road, Chorley, Lancashire.*
1869	Hickson, Joseph, J.P., *Montreal, Canada.*
1878	*Hill, Frederick Morley, 22, *Richmond-road, Barnsbury, N.*
1878	Hillingdon, The Right Hon. Lord, *Camelford House Park-lane, W.*
1884	Hoare, Alfred, 37, *Fleet-street, E.C.*
1879	Hoare, H. N. Hamilton, 37, *Fleet-street, E.C.*
1870	*Hoare, Henry, 22, *Bryanston-square, W.*
1884	Hollond, John Robert, 1, *Upper Berkeley-street, Portman-square, W.*

Year of Election.
1887 Honeyman, Archibald Pearson,
Old Bank House, Kirkcaldy, N.B.
1879 Hooper, George Norgate,
Elmleigh, Hayne-road, Beckenham, Kent.
1878 Hooper, Wynnard,
13, *Sumner-place, Onslow-square, S.W.*
1887 Hopkins, John,
The Grange, Bickley, Kent.
1883 Howell, Francis Buller,
2, *Middle Temple-lane, E.C.*
1883 Howell, George, M.P.,
Hampden House, Ellingham-road, Shepherd's Bush, W.
1885 Howell, Jenkin,
Aberdare, South Wales.
1864 Hudson, Thomas,
17, *Hilde-road, Brixton, S.W.*
1878 Hughes, John,
3, *West-street, Finsbury-circus, E.C.*
1872 Humphreys, George, M.A., F.I.A.,
79, *Pall Mall, S.W.*
1874 HUMPHREYS, NOEL ALGERNON,
General Register Office, Somerset House, W.C.
1873 Hunt, Sir Henry Arthur, C.B.,
45, *Parliament-street, S.W.*
1883 Hunt, Richard Aldington, A.I.A.,
Moor-street, Birmingham.
1885 Hunter, William Alfred, LL.D., M.P.,
2, *Brick-court, Temple, E.C.*
1857 Hurst, George,
King's Brook House, St. Mary's, Bedford.
1887 Hyde, Henry Barry.
5, *Eaton-rise, Ealing, W.*

1866 Ince, Henry Bret, Q.C.,
20, *Old-square, Lincoln's-inn, W.C.*
1869 Ingall, Samuel, F.R.G.S.,
Kent-end, Forest-hill, Kent, S.E.
1874 *Ingall, William Thomas Fitzherbert Mackenzie,
6, *Drapers'-gardens, E.C.*
1886 Ingham, Edward,
8, *Collingham-place, Cromwell-road, S.W.*
1869 *Inglis, Cornelius, M.D.,
Athenæum Club, S.W.
1887 Irvine, Somerset William D'Arcy,
Govt. Life Ins. Office, Wellington, New Zealand.

Year of Election	
1839	Irving, John, 94, *Eaton-place, S.W.*
1861	*Ivey, George Pearse, *South Villa, Bexley-heath, Kent.*
1885	Jackson, Henry, 158, *The Common, Peckham Rye, S.E.*
1880	*Jackson, William Lavies, M.P., *Chapelallerton, Leeds.*
1884	Jacoby, James Alfred, M.P., *Normanton Hall, Normanton-on-the-Wolds, Notts.*
1879	Jamieson, George Auldjo, 37, *Drumsheugh-gardens, Edinburgh.*
1872	Janson, Frederick Halsey, F.L.S., 41, *Finsbury-circus, E.C.;* 60, *Westbourne-terrace, W.*
1878	Jeans, J. Stephen, *Victoria Mansions, Victoria-street, Westminster, S.W.*
1881	*Jersey, The Right Hon. the Earl of, 3, *Great Stanhope-street, W.*
1881	Johnson, Edwin Eltham, 110, *Cannon-street, E.C.*
1871	Johnson, Edmund, 1, *Castle-street, Holborn, E.C.*
1880	Johnson, Walter, *Rounton Grange, Northallerton.*
1872	Johnston, Francis John, *Lamas, Chislehurst.*
1881	Johnston, Rev. James, *Gleneve, Highland-road, Upper Norwood, S.E.*
1883	Johnston, Thomas, *Broomsleigh Park, Seal, Sevenoaks.*
1878	Johnstone, Edward, 14, *Abbeville-road, Cavendish-road, Clapham, S.W.*
1884	*Jones, Edwin, J. P., 141, *Cannon-street, E.C.*
1878	Jones, Henry R. Bence, *Board of Trade, Whitehall-gardens, S.W.*
1874	Jones, Herbert, 15, *Montpelier-row, Blackheath, S.E.*
1887	Jones, John Walter, 58, *Cheapside, E.C.,*
1887	Jones, Lewis Davies, 14, *Pierremont-crescent, Darlington.*
1880	Jones, Robert Hesketh, *St. Augustine's, Hayne-road, Beckenham, Kent.*

Year of Election.	
1877	Jones, Theodore Brooke, *Georgeville, Harrogate, Yorks.*
1883	Joseph, Samuel Solomon, 29, *Hyde Park-gardens, W.*
1884	Josolyne, John Augustus, F.I.C.A., F.S.A., &c., 28, *King-street, Cheapside, E.C.*
1858	Jourdau, Francis, *Avenue House, Hampstead, N.W.*
1873	Kay, Duncan James, 60, *Queen's-gate, S.W.*
1877	Kealy, James William, 26. *Moorgate-street, E.C.*
1885	Keen, William Brock, 15, *King-street, Cheapside, E.C.*
1874	Kelly, Charles, M.D., F.R.C.P., *Worthing, Sussex.*
1884	Kelly, Edward Festus, 51, *Great Queen-street, Lincoln's-inn-fields, W.C.*
1867	Kelly, Edward Robert, A.M., 51, *Great Queen-street, Lincoln's-inn-fields, W.C.*
1883	Keltie, John Scott, 52, *Cromwell-avenue, Highgate, N.*
1884	Kemp, John, 46, *Cannon-street, E.C.*
1884	*KENNEDY, CHARLES MALCOLM, C.B. (*Vice-President*), *Foreign Office, S.W.*
1886	Kennedy, John Gordon, *H.B.M. Embassy, Rome, Italy.*
1878	Kennedy, J. Murray, *New University Club, St. James's-street, S.W.*
1878	Kennedy, Thomas, F.C.A 11, *Old Jewry-chambers, E.C.*
1881	*Kennett-Barrington, Sir V. Hunter, M.A., LL.M., Cantab , 15, *Hyde Park-gardens, W.*
1883	*Keynes, John Neville, M.A., B.Sc. 6, *Harvey-road, Cambridge.*
1887	Kidd, Benjamin, *Inland Revenue Office, Somerset House, W.C.*
1884	Kimber, Henry, M.P., 79, *Lombard-street, E.C.*
1852	Kimberley, The Right Honourable the Earl of, M.A., P.C., 35, *Lowndes-square, S.W.*
1883	*King, Bolton, B.A., 10, *Upper Berkeley-street, W.*
1884	Kirby, Horace Woodburn, F.C.A., 19, *Birchin-lane, E.C.*

Year of Election.

1879 Kirkwood, Anderson, LL.D.,
Melville-terrace, Stirling, N.B.

1878 *Kusaka, Yoshio,
First National Bank, Tokio, Japan.

1869 Kyshe, John Benjamin,
5, *Princes-terrace, Princes-square, Bayswater, W.*

1874 Lang, George Murray, R.N.,
18, *Cheyne-walk, Chelsea, S.W.*

1881 Langton, Henry Currer,
Docklands, Ingatestone, Essex.

1883 Last, William Harrison,
Inland Revenue, Somerset House, W.C.

1885 Latham, Baldwin, M.Inst.C.E.,
7, *Westminster-chambers, S.W.*

1877 Laurance, Henry,
1*a*, *Old Bond-street, W.*

1874 Lawes, Sir John Bennett, Bart., LL.D., F.R.S., F.C.S.,
Rothamsted-park, St. Albans.

1878 Lawrence, Alexander Macclesfield,
West Brae, Stonebridge-park, Willesden, N.W.

1873 Lawrie, James, F.R.G.S.,
63, *Old Broad-street, E.C.*

1883 Lawson, Charles Henry,
Green's End, Woolwich.

1873 **Lawson, Robert**, LL.D. (*Inspector-General of Army Hospitals*), 20, *Lansdowne-road, Notting-hill, W.*

1873 Lea, Thomas, M.P.,
14, *Elvaston-place, Queen's-gate, S.W.*

1883 *Leadam, Isaac Saunders, M.A.,
117, *St. George's-square, S.W.*

1886 Leathes, Stanley M.,
Trinity College, Cambridge.

1883 Lee, Henry,
Reform Club, S.W.

1886 *Lee, Sir Joseph C.,
Mosley-street, Manchester.

1884 Lee, William,
Fairlands, Worplesdon, Guildford, Surrey.

1879 *Leete, Joseph,
36, *St. Mary-at-hill, E.C., & Eversden, S. Norwood Park.*

1877 **Lefevre, The Right Hon. George Shaw**, M.P., M.A., J.P.
(*Honorary Vice-President*), 18, *Bryanston-square, W.*

1877 *Leggatt, Daniel, LL.D.,
5, *Raymond-buildings, Gray's-inn, W.C.*

Year of Election.

1886 Leighton, Sir Baldwyn, Bart.,
49, *Upper Brook-street, W., and Loton-park, Shrewsbury.*
1880 Leighton, Stanley, M.P.,
Sweeney Hall, Oswestry, Salop.
1887 Leitch, Alexander,
17, *King William-street, E.C.*
1887 *Le Roy-Lewis, Herman, B.A. (*Trinity College, Cambridge*),
Westbury House, Petersfield, Hants.
1885 Lever, Ellis,
Culcheth Hall, Bowdon, Cheshire.
1851 Levi, Professor Leone, LL.D., F.S.A.,
5, *Crown Office-row, Temple, and* 31, *Highbury-grove, N.*
1862 Lewis, Robert,
1, *Bartholomew-lane, E.C.*
1877 Ligertwood, Thomas, M.D., F.R.C.S.,
Royal Hospital, Chelsea, S.W.
1884 *Lines, William Edward,
14, *Hugh-street, Eccleston-square, S.W.*
1878 Lloyd, Thomas,
13, *Angel-court, Throgmorton-street, E.C.*
1879 Lloyd, Wilson, F.R.G.S.,
Myvod House, Wood-green, Wednesbury.
1882 *Longstaff, George Blundell, M.A., M.B.,
Southfield Grange, West Hill-road, Wandsworth, S.W.
1876 *Lornie, John Guthrie, J.P.,
Rosemount, Kirkcaldy (of Birnam and Pitcastle), N.B.
1834 Lovelace, The Right Honourable the Earl of, F.R.S.,
East Horsley Park, Ripley, Surrey.
1880 Lovely, William, R.N.,

1886 *Low, Malcolm, M.P.,
22, *Roland-gardens, S.W.*
1865 Lubbock, Sir John, Bart., M.P., F.R.S. (*Trustee*),
High Elms, Beckenham, Kent.
1882 Lubbock, Nevile,
65, *Earl's Court-square, S.W.*
1878 Lucas, Sir Thomas, Bart., J.P.,
37, *Great George-street, Westminster, S.W.*
1885 Luckie, David Mitchell, J.P.,
Wellington, New Zealand.
1878 Lusk, Sir Andrew, Bart., J.P.,
15, *Sussex-square, Hyde Park, W.*

1885 Mabbs, The Rev. Goodeve,
73, *Godolphin-road, Shepherd's Bush, W.*

Year of Election.	
1875	Mabson, Richard Rous, 20, *Bucklersbury, E.C.*
1873	*Macandrew, William, J.P., *Westwood, near Colchester.*
1873	McArthur, Alexander, M.P., *Raleigh Hall, Brixton, S.W.*
1883	McCabe, Hugh B.,
1884	McCabe, William, LL.B , F.I.A., 22, *King-street West. Toronto, Canada.*
1879	MacCarthy, Rev. Egerton Francis Mead, M.A.,
1867	M'Clean, Frank, *Rusthall House, Tunbridge Wells.*
1873	McDermott, Edward, *Hill Side, Grove-park, Camberwell, S.E.*
1887	Macdonald, Andrew J., 40, *Threadneedle-street, E.C.*
1872	Macdonell, John, 4, *Elm-court, Temple, E.C.*
1873	*McEwen, Laurence T., *c/o R. A. McLean,* 1, *Queen Victoria-street, E.C.*
1882	McGuire, Patrick, 6, *Bankshall-street, Calcutta.*
1886	*Mackenzie, Colin, F.R.G.S., 3, *Little Stanhope-street, Mayfair, W.*
1878	McKewan, William, 21, *Lombard-street, E.C.*
1876	*McLean, Robert Allan, F.R.G.S., 1, *Queen Victoria-street. E.C.*
1863	*Maclure, John William, M.P., J.P., &c., *Carlton Club; The Home, Whalley Range, Manchester*
1887	Macmillan, Angus, M.D., *The Elms, Hull.*
1887	McNaught, Robert, 62, *Royal-avenue, Belfast.*
1875	Macpherson, Hugh Martin, F.R.C.S. (*Inspector-General*), 14, *St. James's-square, S.W.*
1887	Macpherson, Walter Charles Gordon, *St. George's Club, Hanover-square, W.*
1883	Macqueen, Robert Davidson Barkly, 20, *Addison-gardens North, W.*
1882	McRosty, Alexander, 13, *King's Arms-yard, E.C.; West Bank, Esher.*
1873	Magheramorne, The Right Hon. Baron, 17, *Grosvenor-gardens, S.W.*
1887	Makower, Maurice, 11, *Randolph-crescent, Maida Vale, W.*
1887	Malleson, Frank R., *Dixton Manor House, Winchcombe, Cheltenham.*

Year of Election.	
1884	Man, Edward Garnet, *Lamb Building, Temple, E.C.*
1883	*Mandlik, The Hon. Rao Saheb Vishvanath Narayan, C.S.I., *The Hermitage, Khamballa Hill, Bombay.*
1887	Mann, James Saumarez, M.A., *Trinity College, Oxford.*
1887	Mann, W. E., 84, *Fore-street, E.C.*
1884	*Manson, Frederick William, *Wellfield, Muswell Hill, N.*
1877	*Maple, John Blundell, M.P., 8, *Clarence-terrace, Regent's-park, N.W.*
1887	Marks, David, 4, *Cornwall-mansions, Cornwall-gardens, S.W.*
1875	Marsh, Alfred, 85, *Gracechurch-street, E.C.*
1880	*Marshall, Professor Alfred, *Balliol Croft, Madingley-road, Cambridge.*
1887	Marshall, W. Bayley, M. Inst. C.E., M.Inst. M.E., 15, *Augustus-road, Edgbaston, Birmingham.*
1887	Martin, James, 3, *Newgate-street, E.C.*
1874	*MARTIN, JOHN BIDDULPH, M.A., F.Z.S. (*Foreign Secretary*), 17, *Hyde-park-gate, S.W.*
1877	Martin, Josiah, F.I.A., *Rosendale, King Edward-road, New Barnet.*
1872	*MARTIN, RICHARD BIDDULPH, M.A. (*Treasurer*), 68, *Lombard-street, E.C., and Chislehurst.*
1876	*Martin, Thomas Jaques, 84, *Collins-street West, Melbourne, Victoria.*
1879	Martin, Waldyve Alex. Hamilton, *The Upper Hall, Ledbury, Herefordshire.*
1886	Mason, Stephen, M.P., *Glasgow, and* 50, *Bread-street, E.C.*
1884	Mason, William Arthur, 31*a*, *Colmore-row, Birmingham.*
1875	*Mathers, John Shackleton, *Hanover House, Leeds, Yorkshire.*
1883	Mathieson, Frederic Coxhead, *Beechworth, Hampstead, N.W.*
1874	May, Frank, *Bank of England, Threadneedle-street, E.C.*
1882	Medhurst, John Thomas, 77, *East India Dock-road, Poplar, E.*
1883	*Medley, George Webb, 21, *Park-street, Park-lane, W.*
1853	*Meikle, James, F.I.A., 6, *St. Andrew's-square, Edinburgh.*

Year of Election	
1880	Menzies, R. Stewart, M.P., *Hallyburton, Coupar-Angus, N.B.*
1884	Merton, Zachary, 14*a*, *Manchester-square, W.*
1887	Meudell, George D., F.S.A., 10, *Market-buildings, William-street, Melbourne.*
1881	Meyer, Robert Alexander, 40*a*, *Queen's-mansions, Victoria-street, S.W.*
1875	Mildmay, Henry Bingham, J.P., 8, *Bishopsgate-street Within, E.C.*
1873	Millar, William Henry, *Cleveland Lodge, New Park-road, Brixton-hill, S.W.*
1877	Miller, Robert Ferguson, *Ramsden-square, Barrow-in-Furness.*
1879	Miller, William, 67, *Queen Victoria-street, E.C.*
1882	Milnes, Alfred, M.A., 30, *Almeric-road, Wandsworth, S.W.*
1884	Milnes, Charles S., 155, *Fenchurch-street, E.C.*
1874	*Mocatta, Frederick D., F.R.G.S., 9, *Connaught-place, W.*
1878	Moffat, Robert J., *Meadowcroft, Cambridge.*
1879	Moore, Alfred, C.E., *Queen's Chambers*, 2, *Ridgfield, Manchester.*
1887	Moore, Arthur Chisholm, 23, *Essex-street, Strand, W.C.*
1874	Moore, Charles Rendall, 46, *Brockley-road, Lewisham-road, S.E.*
1877	Moore, Edward, 3, *Crosby-square, E.C.*
1885	Moore, Harold Edward, 1, *Essex-street, Strand, W.C.*
1878	*Moore, John Byers Gunning, *Loymount, Cookstown, Ireland.*
1880	More, Robert Jasper, M.P., *Linley Hall, Bishopscastle, Salop.*
1883	Morgan, James Henry, 126, *Narrow-street, Limehouse, E.*
1872	Morgan, Octavius Vaughan, M.P., J.P., 13, *Boltons, South Kensington, S.W.*
1881	Morison, Arthur Duff, *Constitutional Club, Northumberland-avenue, S.W.*
1874	*Morris, James, M.D., F.R.C.S., 13, *Somers-place, Hyde-park-square, W.*
1884	Morris, W. Targett, *Langford House, Buckhurst-hill, Essex.*
1877	Mort, William, 1, *Stanley-crescent, Notting-hill, W.*

Year of Election.	
1873	Morton, James, 30, *Forsyth-street, Greenock, N.B.*
1885	*Mosley Tonman, *Bangors, Iver, Uxbridge.*
1847	*Mouat, Frederic John, M.D., LL.D., 12, *Durham-villas, Kensington, W.*
1857	*Mount-Temple, The Right Hon. Lord, 15, *Great Stanhope-street, W.*
1886	Mowbray, Robert Gray Cornish, M.P., 19, *Down-street, Piccadilly, W.*
1886	Moxon, Thomas B., *Manchester and County Bank, Limited, Manchester.*
1883	Muirhead, Henry James, *Oakwood, Farquhar-road, Upper Norwood, S.E.*
1880	Mulhall, Michael George, "*Standard*" *Office, Buenos Ayres.*
1878	*Mundella, The Right Hon. Anthony John, M.P., F.R.S., 16, *Elvaston-place, Queens-gate, S.W.*
1878	Murray, Adam, 104, *King-street, Manchester.*
1879	Murray, James Charles, *Calcutta.*
1883	Murray, Kenric Bright, *Botolph House, Eastcheap, E.C.*
1887	Nacian, J. J., *Ministry of Finance, Bucharest, Roumania.*
1865	Nasmith, David, 4, *Brick-court, Temple, E.C.*
1878	*Nathan, Henry, *Dashwood House, New Broad-street, E.C.*
1854	Neild, Alfred, *Mayfield Print Works, Manchester.*
1869	NEISON, FRANCIS GUSTAVUS PAULUS, F.I.A., 93, *Adelaide-road, South Hampstead, N.W.*
1885	Nelson, Edward Montague, J.P., *Hanger Hill House, Ealing, W.*
1877	Nevill, Charles Henry, 11, *Queen Victoria-street, E.C.*
1862	Newbatt, Benjamin, F.I.A., F.R.G.S., 15, *St. James's-square, S.W.*
1881	Newcome, Frederick N.,

Year of Election.	
1883	Newmarch, Mrs. Elizabeth, *Brook House, Addlestone, Surrey.*
1878	Newton, John, *Ash Lea, Croydon-road, Penge, S.E.*
1878	Nicholson, Professor J. S., M.A. *University of Edinburgh.*
1858	Nightingale, Miss Florence, 10, *South-street, Park-lane, W.*
1877	Nix, Samuel Dyer, F.C.A., 3, *King-street, Cheapside, E.C.*
1871	*Noble, Benjamin, *North-Eastern Bank, Newcastle-on-Tyne.*
1870	Noble, John, 39, *Lady Margaret-road, N.W.*
1883	Norfolk, J. Ernest Walter, *Bridge House*, 181, *Queen Victoria-street, E.C.*
1884	Norman, Charles Loyd, *Oakley, Bromley, Kent.*
1877	Norman, General, Sir Henry Wylie, K.C.B., G.C.M.G., *King's House, Jamaica.*
1878	Northbrook, The Right Hon. the Earl of, G.C.S.I., D.C.L., 4, *Hamilton-place, Piccadilly, W.*
1878	Notthafft, Theodor, *c/o Discount Bank, St. Petersburg.*

1880	Oakeshott, George Alfred, *Secretary's Office, General Post Office, E.C.*
1884	Odgers, William Blake, LL.D., 4, *Elm-court, Temple, E.C.*
1880	*Oelsner, Isidor, *Highfield, Westwood-park, Forest-hill, S.E.*
1887	O'Galligan, George R., C.E., 21, *Cabra-parade, Phibsborough, Dublin.*
1862	Ogbourne, Charles Henry, 29, *Dalhousie-square, Calcutta.*
1885	**Ogle, William**, M.A., M.D., F.R.C.P., &c., *General Register Office, Somerset House, W.C.*
1884	Ogston, George Henry, 39, *Lime-street, E.C.*
1885	*Oldham, John, *River Plate Telegraph Company, Montevideo.*
1884	Oldroyd, Mark, *Hyrstlands, Dewsbury, Yorkshire.*
1878	Oppenheim, Henry, 16, *Bruton-street, Bond-street, W.*

Year of Election.
1876 Orange, William, C.B., M.D.,
35, *Cromwell-road*, *Hove*, *Brighton.*
1877 Ormond, Richard,
24, *Grainger-street West*, *Newcastle-on-Tyne.*
1874 Overall, William Henry, F.S.A. (*Librarian, Guildhall, E.C.*).
Representing the Library Committee of the Corporation of the City of London.
1887 Owen, Evan F., F.I.A.,
Department of Government Statist, Melbourne, Victoria.

1887 *Page, Edward D.,
c/o Faulkner, Page, & Co., New York City, U.S.A.
1886 Pain, James,
Borough, *Micheldever*, *Hants.*
1866 *Palgrave, Robert Harry Inglis, J.P., F.R.S.,
Belton, *Great Yarmouth*, *Norfolk.*
1879 Palmer, George,
58, *Grosvenor-street*, *W.: and The Acacias*, *Reading.*
1884 Palmer, J. T.,
8, *Wine Office-court*, *Fleet-street*, *E.C.*
1887 Pankhurst, Richard Marsden, LL.D.,
225, *Strand*, *W.C.;* 10, *St. James's-square*, *Manchester.*
1878 Park, David Francis. C.A., F.F.A., A.I.A.,
17, *Change alley*, *Cornhill*, *E.C.*
1887 Parker, Archibald,
Camden-wood, *Chislehurst*, *Kent.*
1878 Parry, Thomas,
Grafton-place, *Ashton-under-Lyne.*
1879 Partridge, Henry Francis, L.D.S., &c.,
Sussex House, *Sussex-place*, *South Kensington*, *S.W.*
1883 Paterson, John,
1, *Walbrook*, *E.C.*
1877 Paul, Henry Moncreiff,
12, *Lansdowne-crescent*, *Notting Hill*, *W.*
1878 Paulin, David,
44, *Moray-place*, *Edinburgh.*
1879 Payn, Howard,
30, *Hyde-park-place*, *W.*
1884 *Peace, Walter,
21, *Finsbury-circus*, *E.C.*
1876 Pearson, Edwin James,
Athenæum Club, *S.W.*

Year of Election.

1857 *Pearson, Professor C. H.,
c/o Sir John Pearson, Q.C., 75, _Onslow-square, S.W._

1880 *Pease, Sir Joseph Whitwell, Bart., M.P.,
24, _Kensington-palace-gardens, W._

1876 *Peek, Sir Henry William, Bart.,
Wimbledon House, S.W.

1878 Pellereau, Hon. Mr. Justice Etienne,
Penang, Straits Settlements.

1886 Pembroke, The Right Hon. the Earl of,
Wilton House, Salisbury.

1880 Pender, Sir John, K C.M.G.,
18, _Arlington-street, S.W._; 50, _Old Broad-street, E.C._

1871 Pennington, Frederick,
17, _Hyde Park-terrace, W._

1874 Pepys, The Hon. George,
United University Club, Suffolk-street, S.W.

1887 Percival, William (_National Conservative Club, Pall Mall_),
3, _Threadneedle-street, E.C._

1883 Petheram, Frederick William, F.C.A.,
2, _Lombard-court, E.C._

1886 Peto, Henry, M.A.,
Fleet House, Weymouth.

1887 Phelps, Colonel A.,
23, _Augustus-road, Edgbaston, Birmingham._

1886 Phelps, The Rev. Lancelot Ridley, M.A.,
Oriel College, Oxford.

1874 Phené, John Samuel, LL.D., F.S.A.,
32, _Oakley-street, S.W._

1879 Philips, Herbert,
35, _Church-street, Manchester._

1877 Phillipps, Henry Matthews,
41, _Seething-lane, E.C._

1887 Phillips, Charles H. (_Registrar-General of Trinidad_),
Port of Spain, Trinidad.

1883 Phillips, John Orwell,
Horseferry-road, Westminster, S.W.

1878 Phipps, Pickering,
6, _Collingtree Grange, Northampton._

1871 *Pickering, John, F.R.G.S., F.S.A.,
86, _Thicket-road, Anerley, S.E._

1885 Pierrard, Paul,
12, _Moorgate-street, E.C._

1878 *Pim, Joseph Todhunter,
Greenbank, Monkstown, County Dublin.

1838 *Pinckard, George Henry, J.P., F.I.A.,
12, _Grove-road, St. John's-wood, N.W._

1886 Pink, J. Francis,
62, _Chandos-street, Strand, W.C._

1885 Pitman, Walter Hayward,
30, _Newgate-street, E.C._

Year of Election.	
1879	Pixley, Francis William, 23, *Linden-gardens, W.*
1881	Planck, Charles, M.R.C.S. (*Deputy Surgeon-General*), *Allahabad, India.*
1883	Platt, James, *Rookwood, Hampstead, N.W.*
1861	Plowden, Sir Wm. Chicele, K.C.S.I., M.P., 12, *Queen's Gate-place, S.W.; Wyke Hall, Gillingham, Dorset.*
1869	POCHIN, HENRY DAVIS, J.P., *Bodnant Hall, Eglwysbach, R.S.O. Denbighshire.*
1884	Polson, John, *West Mount, Paisley, N.B.*
1883	Pope, William Agnew, 113, *Cannon-street, E.C.*
1885	Popplewell, William Willott, *Victoria Chambers, Southampton-buildings, W.C.*
1879	*POWELL, FRANCIS SHARP, M.P. (*Horton Old Hall, Bradford*), 1, *Cambridge-square, Hyde Park, W.*
1871	Power, Edward, 16, *Southwell-gardens, South Kensington, S.W.*
1884	Power, John Danvers, 3, *Westminster-chambers, Victoria-street, S.W.*
1877	*Prance, Reginald Heber, *Frognal, Hampstead, N.W.*
1877	Praschkauer, Maximilian, 10, *Priory-grove, Boltons, S.W.*
1883	Pratt, Benjamin, 82, *Wood-street, E.C.*
1867	*Pratt, Robert Lindsay, 80, *Bondgate, Darlington.*
1887	Price, L. L. F. R., B.A., *Oriel College, Oxford.*
1877	PRICE-WILLIAMS, RICHARD, M. Inst. C.E., 38, *Parliament-street, S.W.*
1887	Probyn, Leslie Charles, 79, *Onslow-square, S.W.*
1884	*Proctor, William, 89, *Corporation-street, Manchester.*
1886	Provand, Andrew Dryburgh, M.P., *Lloyd's House, Manchester.*
1871	Puleston, John Henry, M.P., 2, *Bank-buildings, Princes-street, E.C.*
1886	Pulley, Joseph, 90, *Piccadilly, W.*
1837	*Purdy, Frederick, 35, *Victoria-road, Kensington, W.*
1885	Purvis, Gilbert, *Ingle Neuk, Brackley-road, Beckenham, Kent.*

Year of Election.	
1879	Quail, Jesse, "*Northern Daily Telegraph,*" *Blackburn.*
1874	Quain, Richard, M.D., F.R.S., F.R.C.P., 67, *Harley-street, W.*
1883	Quoadt, Ferdinand, *Corn Exchange Chambers, Seething-lane, E.C.*
1883	Rabbidge, Richard, F.C.A., 32, *Poultry, E.C.*
1872	*Rabino, Joseph, (*c/o Crédit Lyonnais*), *Alexandria, Egypt.*
1858	*Radstock, The Right Honourable Lord, *East Sheen, Mortlake, S.W.*
1885	Rae, John, 71, *Disraeli-road, Putney, S.W.*
1887	Raffalovich, Arthur, 43, *Rue de Courcelles, Paris.*
1877	Raikes, Major George Alfred, F.S.A., F.R. His. Soc., 63, *Belsize-park, Hampstead, N.W.*
1860	Ramsay, Alexander Gillespie, F.I.A., *Canada Life Assurance Co., Hamilton, Canada West.*
1885	Randell, James S., *Corsham, Wilts.*
1879	Ranken, William Bayne, 99, *Eaton-square, S.W.*
1880	Rankin, James, M.P., 35, *Ennismore-gardens, Prince's Gate, S.W.*
1881	Raper, Robert George, *Chichester.*
1884	Raphael, Alfred, 87, *Alexandra-road, N.W.*
1859	Rathbone, P. H., *Greenbank Cottage, Liverpool.*
1878	Rathbone, William, M.P., 18, *Prince's-gardens, Prince's-gate, S.W.*
1884	*Ravenscroft, Francis, *Birkbeck Bank, Chancery-lane, W.C.*
1874	*Ravenstein, Ernest George, F.R.G.S., 29, *Lambert-road, Brixton Rise, S.W.*
1886	Rawlins, Frederick, *Southport, Queensland.*
1877	*Rawlins, Thomas, 45, *King William-street, E.C.*

Year of Election.	
1835	Rawson, Sir Rawson W., K.C.M.G., C.B. (*Honorary Vice-President*), 68, *Cornwall-gardens, Queen's-gate, S.W.*
1880	Readdy, George, 13, *Harrington-street, Liverpool.*
1875	Record, John, 23, *Kenninghall-road, Clapton, E.*
1886	Rhens, Robert, 20, *Fassett-square, Dalston, E.*
1879	Rhodes, John George, *Oakdene, Beckenham, Kent.*
1884	Richards, E. W., C.E. *Middlesboro-on-Tees.*
1884	Richardson, T. H., *Brynteg, Middlesbrough.*
1873	Ripon, The Most Hon. the Marquess of, K.G., F.R.S, &c. 1, *Carlton-gardens, S.W.*
1887	Roberts, Arthur Herbert, F.C.A., F.R.G.S., *Caledonian Chambers, St. Mary-street, Cardiff.*
1882	Roberts, Edward, F.R.A.S., (*Nautical Almanac Office*), 3, *Verulam-buildings, Gray's Inn, W.C.*
1885	Robertson, Thomas Stewart, *Collins-street West, Melbourne, Victoria.*
1887	Robinson, Henry James, 7, *Oakhill-terrace, West-hill, Putney, S.W.*
1885	Rodger, Adam Kier, 81, *Renfield-street, Glasgow.*
1886	Roechling, Herman A., A.M. Inst. C.E., 23, *Highfield-street, Leicester.*
1880	*Ronald, Byron L., 14, *Upper Phillimore-gardens, W.*
1885	Roper, Alderman William, *Southfield, Lancaster.*
1873	*Rosebery, The Right Hon. the Earl of, *Lansdowne House, Berkeley-square, W.*
1880	Roth, Henry Ling, 63, *Great George-street, Leeds.*
1865	Ruck, George Thomas, *The Hawthorns, Dorville-road, Lee, S.E.*
1879	Runtz, John, *Linton Lodge, Lordship-road, Stoke Newington, N.*
1886	Russell, Arthur B., A.C.A., 11, *Ludgate-hill, E.C.*; 20, *Beacon-hill, Camden-rd. N.*
1878	Russell, Richard F., 8, *John-street, Adelphi, W.C.*
1887	Russell, Thomas, C.M.G., 59, *Eaton-square, S.W.*
1873	Rutherford-Elliot, J. G., 5, *Spence-street, Newington, Edinburgh.*

Year of Election.	
1884	Ryan, Gerald Hemmington, F.I.A., 14, *Leadenhall-street, E.C.*
1887	Sacré, Alfred Louis, C.E., 60, *Queen Victoria-street, E.C.*
1873	*Salisbury, The Most Hon. the Marquess of, P.C., F.R.S., 20, *Arlington-street, W.*
1881	Salmon, James, 21, *Finsbury Pavement, E.C.*
1875	*Salomons, Sir David Lionel, Bart., J.P., *Broom-hill, Tunbridge Wells.*
1876	Salt, Thomas, M.P., *Weeping Cross, Stafford.*
1868	Samuelson, Sir Bernhard, Bart., M.P., F.R.S., 56, *Prince's-gate, Hyde-park, S.W.*
1860	Sargant, William Lucus, *Rotton-park-road, Birmingham.*
1886	Sauerbeck, Augustus, 4, *Moorgate-street-buildings, E.C.*
1877	Saunders, Charles Edward, M.D., 21, *Lower Seymour-street, Portman-square, W.*
1852	Saunders, Alderman James Ebenezer, F.G.S. 9, *Finsbury-circus, E.C.*
1879	Saunders, William, *Mount View, Streatham, S.W.*
1887	Scarth, Leveson Edward. M.A., *Hengrave, Manor-road, Bournemouth.*
1883	Schidrowitz, Samuel, 102, *Oxford-gardens, Notting Hill, W.*
1877	Schiff, Charles, 22, *Lowndes-square, S.W.*
1877	Schneidau, Charles John, 6, *Westwick-gardens, West Kensington-park, W.*
1883	*Schwann, John Frederick, *Oakfield, Wimbledon, S.W., and* 6, *Moorgate-street, E.C.*
1883	Sclanders, Alexander, 10, *Austin Friars, E.C.*
1885	Scott, James Henry, 12, *Waterloo-place, S.W.*
1885	Scott, John D., M.A., *St. John's College, Cambridge.*
1887	Seaton, Edward, M.D., Lond., F.R.C.P., 35, *George-street, Hanover-square, W.*
1880	*Seeley, Charles, jun., *Sherwood Lodge, Nottingham.*
1883	Seligman, Isaac, *Lincoln House, Clapham Park, S.W.*

Year of Election.	
1886	Selwyn, Captain Charles W., M.P., 1, *Upper Brook-street, W.*
1886	Seyd, Ernest J. F. 38, *Lombard-street, E.C.*
1873	Seyd, Richard, 38, *Lombard-street, E.C.*
1886	Shaw, Frederick Du Frocq,
1886	Shaw-Stewart, Michael Hugh, M.P., D.L., 7, *Charles-street, Berkeley-square, W.*
1887	Shennan, David A., *Oriental Club, Hanover-square, W.*
1879	Shepheard, Wallwyn Poyer Burnett, M.A., 24, *Old Buildings, Lincoln's Inn, W.C.*
1885	Sherwin, Joseph Henry, 16, *Whitehall-place, S.W.*
1871	Sidgwick, Prof. Henry, M.A. *Trinity College, Cambridge.*
1886	Silver, S. W., 3, *York-gate, Regent's Park, N.W.*
1887	Sim, Major-General Coysgarne (late R.E.), 32, *James'-street, Buckingham-gate, S.W.*
1878	Simmonds, G. Harvey, 1, *Whitehall, S.W.*
1885	Simner, William Lewis, *Dyffryn, Potter's Bar.*
1850	Singer, Charles Douglas, 53, *The Common, Upper Clapton, E.*
1886	Sitwell, Sir George Reresby, Bart., J.P., *Renishaw Hall, Chesterfield.*
1882	Skinner, Charles Weeding, *Hill Crest, Theydon Bois, Essex.*
1884	Skliros, George Eustace, M.A., F.R.G.S., &c., 289, *Regent-street, W.*
1881	Skrine, Francis Henry, *United Service Club, Calcutta, India.*
1883	Sly, Richard Stevens, F.R.G.S., *Fern Villa, Queen's-road, New Cross Gate, S.E.*
1869	Smee, Alfred Hutcheson, M.R.C.S., *The Grange, Wallington, Surrey.*
1886	*Smith, Arthur Manley, 29, *Lincoln's Inn-fields, W.C.*
1878	*Smith, Charles, M.R.I.A., F.G.S., Assoc. Inst. C.E., *c/o Dr. Gilbert, F.R.S., Harpenden, St. Albans.*
1883	*Smith, The Hon. Donald A., 1157, *Dorchester-street, Montreal, Canada.*
1871	Smith, E. Cozens, 1, *Old Broad-street, E.C.*
1883	Smith, E. Woodley, A.C.A., 28, *Budge-row, Cannon-street, E.C.*

Year of Election.

1878 *Smith, George, LL.D., C.I.E.,
Serampore House, Napier-road, Edinburgh.

1877 Smith, Howard S.,
37, *Bennett's Hill, Birmingham.*

1878 *Smith, James,
South Indian Railway, Trichinopoly, Madras Presidency.

1877 Smith, John,
8, *Old Jewry, E.C.*

1879 Smith, John Fisher,
76, *Cheapside, E.C.*

1887 Smith, Joseph,
Oakeswell Hall, Wednesbury.

1883 Smith, Samuel, M.P.,
West Hill Side, Clapham Common, S.W.

1880 Smith, Thomas Sherwood,
Firgrove, Keynsham, near Bristol.

1867 *Smith, The Right Honourable William Henry, M.P.,
3, *Grosvenor-place, S.W.*

1887 Snell, Arthur Henry,
27, *Mincing-lane, E.C.*

1884 Solomon, The Hon. Michael, (*Jamaica*),
c/o Joseph Bravo and Co., 48, *St. Mary Axe, E.C.*

1855 Sowray, John Russell,
Office of Woods, 1, *Whitehall-place, S.W.*

1884 Spark, C. W.,
The Chantry, Alford, Lincolnshire.

1867 *Spencer, Robert James,
High-street, Portsmouth.

1881 Spice, Robert Paulson, C.E.,
21, *Parliament-street, Westminster, S.W.*

1883 Spicer, Albert,
Woodford, Essex, and 50, *Upper Thames-street, E.C.*

1856 *Sprague, Thomas Bond, M.A., F.I.A.,
26, *St. Andrew-square, Edinburgh.*

1872 Spriggs, Joseph,
Foxton, near Market Harbro'.

1882 Stack, Thos. Neville,
3, *Church-lane, College-green, Dublin.*

1856 *Stainton, Henry Tibbats,
Mountsfield, Lewisham, S.E.

1885 Standfield, John,
44, *Lillieshall-road, Clapham, S.W.*

1877 Staples, Sir Nathaniel Alexander, Bart.,
Lissan, Cookstown, Tyrone, Ireland.

1880 Stark, James,
17, *King's Arms-yard. E.C.*

1880 Stephens, William Davies, J.P.,
4, *Abbotsford-terrace, Newcastle-on-Tyne.*

1882 *Stern, Edward De,
11, *Princes-gate, S.W.*

Year of Election.	
1885	Stevens, Marshall, *Highfield House, Urmston, near Manchester.*
1887	Stewart, Robert Muter, *Hawthorne, Bickley, Kent.*
1883	Stone, Frank, *Cleveland-villas, Ilford, Essex.*
1877	Stone, William Alfred, 90, *Cannon-street, E.C.; Hayton, Bramley Hill, Croydon.*
1886	Storey, Alderman Samuel, M.P., *Holm Lea, Sunderland.*
1855	*Stott, John, F.I.A., 43, *Buckland-crescent, Belsize-park, N.W.*
1865	Strachan, Thomas Young, F.I.A., 18, *Grainger-street West, Newcastle-on-Tyne.*
1872	Strachey, General Richard, R.E., C.S.I., F.R.S., *India Office, Westminster, S.W.*
1880	Strutt, Hon. Frederick, *Milford House, near Derby.*
1884	*Sugden, Richard, *The Farre Close, Brighouse, Yorkshire.*
1880	*Summers, William, M.P. (*Sunnyside, Ashton-under-Lyne*). *Reform Club, Pall Mall, S.W.*
1884	Sutherland, Thomas, M.P., 167, *Cromwell-road, South Kensington, S.W.*
1884	Sweeting, Richard Deane Roker, M.R.C.S., B.A., &c., *Western District Hospital, Seagrave-road, Fulham, S.W.*
1881	Sykes, George Samuel, 1, *Grant's Lane, Calcutta, India.*
1859	*Tait, Patrick Macnaghten, F.R.G.S., 53, *Grand Parade, Eastbourne.*
1885	Tanner, Russell R., B.A.,
1884	Tarbet, Thomas William, 33, *Warwick-street, Regent-street, W.*
1880	Taylor, George, 17, *Abchurch-lane, E.C.*
1883	Taylor, Harry, 40, *Albert Hall-mansions, Kensington, S.W.*
1884	Tempany, Thomas William, F.R.H.S., 25, *Bedford-row, W.C.*
1882	Temperley, Joseph, 1, *Cail's-buildings, Newcastle-on-Tyne.*
1880	Temple, Sir Richard, Bart., G.C.S.I., M.P., D.C.L., &c., *Carlton Club, Pall Mall, S.W.*
1887	Thomas, John, 18, *Wood-street, E.C.*

Year of Election.

1879 Thomas, W. Cave,
8, *Fitzroy-street, Fitzroy-square. W.*

1878 Thompson, Alfred Boyle, F.R.C.P. Edin.,
18, *Serjeants'-inn, Temple, E.C.*

1864 *Thompson, Henry Yates,
26*a*, *Bryanston-square, W.*

1868 Thomson, James,
35, *Nicholas-lane, E.C.*

1871 Thomson, Thomas D.,
57, *Moorgate-street, E.C.*

1887 Thomson, William Edward,
75, *White Ladies-road, Clifton, Bristol.*

1883 Thorburn, Alexander Brown,
17, *Marloes-road, Kensington, W.*

1882 Tinker, James,
80, *Cromwell-road, S.W.*

1879 Tipping, William,
Oakfield House, Ashton-under-Lyne.

1855 Tomline, Colonel George,
1, *Carlton House-terrace, S.W.*

1868 *Treatt, Frank Burford,
Immigration Office, Sydney, New South Wales.

1868 Tritton, Joseph Herbert,
54, *Lombard-street, E.C.*

1887 Tunley, George,
3, *Foley-avenue, Hampstead, N.W.*

1880 Tupp, Alfred Cotterill (*Bengal Civil Service*),
c/o Messrs. King, King, and Co., Bombay.

1878 Turnbull, Alexander,
118, *Belsize-park-gardens, N.W.*

1867 Turner, Thomas,
Holywell House, Weston-super-Mare.

1885 Turner, William,
Board of Trade, Cardiff.

1841 Tyndall, William Henry,
Morlands, Oxford-road, Redhill.

1876 *Urlin, Richard Denny,
22, *Stafford-terrace, Phillimore-gardens, W.*

1842 Valpy, Richard,
43, *Prince's-gate, S.W*

Year of Election.	
1868	Vanderbyl, Philip, 51, *Porchester-terrace, W.*
1880	Van de Linde, Gérard, F.C.A., 12, *Laurence Pountney-lane, Cannon-street, E.C.*
1884	Veevers, Richard, *Woningworth, Fulwood-park, Preston.*
1886	Vernon, The Right Hon. Lord, *Sudbury Hall, Derby.*
1874	Vian, William John, 64, *Cornhill, E.C.*
1876	Vigers, Robert, 4, *Frederick's-place, Old Jewry, E.C.*
1887	Vincent, C. E. Howard, M.P., C.B., 1, *Grosvenor-square, W.*
1885	Vincent, Frederick James, A.I.A., 23, *Harvest-road, Holloway, N.*
1877	Vine, Sir John Richard Somers, 1, *Adam-street, Adelphi, W.C.*
1873	Wakeford, Henry, *Home Office, Whitehall, S.W.*
1883	Walford, John Edward, C.C., 73, *Knightrider-street, E.C.*
1882	Wallen, Robert, J.P., *Harlech, Hawthorn, near Melbourne, Victoria.*
1868	Wallis, Charles James, 93, *Brecknock-road, Camden-road, N.*
1880	Wallis, E. White, F.M.S., 49, *Clifton-hill, St. John's Wood, N.W.*
1876	Walter, Arthur Fraser, 15, *Queen's Gate-terrace, S.W.*
1850	Walter, John, 40, *Upper Grosvenor-street, W.*
1879	Wansey, Arthur H., *Sambourne, Stoke Bishop, Bristol.*
1887	Wardle, Thomas, *Leek, Staffordshire.*
1873	Waring, Charles, 2, *Grosvenor-square, W.*
1886	Waters, Alfred Charles, *General Register Office, Somerset House, Strand, W.C*
1865	Waterhouse, Edwin, B.A., 44, *Gresham-street, E.C.*
1873	Watson, John Forbes, M.A., M.D., LL.D. 16, *Lullington-road, Anerley, S.E.*

Year of Election.	
1883	Watson, T. Wilkinson, 183, *West George-street, Glasgow.*
1882	Watson, Walter, *Pulbro Lodge, Northampton-park, Canonbury, N.*
1883	Watson, William Livingstone, 7, *Wetherby-gardens, South Kensington, S.W.*
1885	*Watt, William, 27, *North Albert-street, Aberdeen.*
1865	Webster, Alphonsus,
1873	Webster, James Hume, 14, *Chapel-street, Park-lane, W.*
1887	Weir, Archibald, M.A., Oxon., *Highland, Windmill-hill, Enfield.*
1873	*WELBY, SIR REGINALD EARLE, K.C.B., *The Treasury, Whitehall, S.W.*
1886	Weller, Ebenezer Thomas,
1873	Wells, W. Lewis, 50, *Old Broad-street, E.C.*
1855	Welton, Thomas Abercrombie, *Rectory Grove House, Clapham, S.W.*
1879	Wenley, James Adams, *Bank of Scotland, Bank-street, Edinburgh.*
1876	Westgarth, William, 8, *Finch-lane, E.C.*
1886	Westhead, Thomas, *Castletown, Stafford.*
1879	*Westlake, John, Q.C., LL.D., *The River House*, 3, *Chelsea Embankment, S.W.*
1882	*Whadcoat, John Henry, *Crown Buildings, Old Broad-street, E.C.*
1883	*Whadcoat, William Edward, 112, *Grosvenor-road, Highbury New-park, N.*
1878	Wharton, James, *Edgehill, Netherall-terrace, Fitz-John's-avenue, N.W.*
1884	Whibley, Frederick George, *Albion Chambers, Bristol.*
1887	Whinney, Frederick, 8, *Old Jewry, E.C.*
1859	Whitbread, Samuel, M.P., 10, *Ennismore-gardens, Princes-gate, S.W.*
1876	Whitcher, John, Jr., F.I.A., 81, *King William-street, E.C.*
1887	*White, The Rev. George Cecil, M.A., *St. Paul's Vicarage, Southampton.*
1863	White, Leedham, 25, *Cranley-gardens, South Kensington, S.W.*
1871	White, William, 23, *Wynell-road, Forest-hill, S.E.*

Year of Election.	
1873	Whitehead, Jeffery, 39, *Throgmorton-street, E.C.*
1884	Whiteley, William, *Westbourne-grove, Bayswater, W.*
1879	*Whitwill, Mark, J.P., *Bristol.*
1884	Wightman, Charles, 1, *Fenchurch-avenue, E.C.*
1875	Wilkinson, Thomas Read, *Manchester and Salford Bank, Manchester.*
1860	Willans, John Wrigley. *The Woodlands, Kirkstall, Leeds.*
1864	Williams, Frederick Bessant, 46, *Leicester-square, W.C.*
1870	Williams, Henry Reader, 6, *Lime-street, E.C.; and Oak Lodge, Highgate, N.*
1887	Williamson, George Charles, F.R. Hist. Soc., *Dunstanbeach, Guildford.*
1884	Wilson, James (*Deputy Commissioner*), *Shahpur, Panjab, India.*
1886	Wilson, Robert,
1874	*Wilson, Robert Porter, 5, *Cumberland-terrace, Regent's-park, N.W.*
1872	*Winch, William R., *North Mymms Park, Hatfield, Herts.*
1884	Wishart, G. D., 8, *Livingstone-avenue, Sefton-park, Liverpool.*
1885	Wolff, Captain M. Paul, 1, *Cambridge-road, Brighton.*
1886	Wolverton, The Right Hon. Lord, 67, *Lombard-street, E.C.*
1883	Wood, Thomas Percival, 27, *Leadenhall-street, E.C.*
1887	Woodhouse, Coventry Archer, 30, *Mincing-lane, E.C.*
1877	Woodrow, Thomas John, *Sisland Cottage, Wanstead, E.*
1838	Woolhouse, Wesley Stoker Barker, F.R.A.S., *Alwyne Lodge, Alwyne-road, Canonbury, N.*
1878	Worsfold, Rev John Napper, M.A., *Haddlesey Rectory, near Selby, Yorkshire.*
1887	Worthington, A. W., B A., *Old Swinford, Stourbridge.*
1887	Wreford, George, 33, *Carey-street, Lincoln's-inn, W.C.*
1880	Wren, Walter, 7, *Powis-square, W.*
1883	Wright, Bryce McMurdo, 204, *Regent-street, W.*

Year of Election.	
1887	Wright, William Ernest, 53, *Stapleton Hall-road, Stroud-green, N.*
1838	*Wyatt-Edgell, Rev. Edgell, 40, *Grosvenor-street, W.; Stanford Hall, Rugby.*
1884	Wyllie, Colin Campbell, 34, *Clement-lane, E.C., and Walden, Chislehurst.*
1879	Yeats, John, LL.D., 7, *Beaufort-square, Chepstow.*
1886	Yerburgh, Robert Armstrong, M.P., 22, *Queen-street, Mayfair, W.*
1877	*Youll, John Gibson, *Jesmond-road, Newcastle-on-Tyne.*
1882	Young, E. M., 13, *Leadenhall-street, E.C.*

⁂ *The Executive Committee request that any inaccuracy in the foregoing list may be pointed out to the* Assistant Secretary *and that all changes of address may be notified to him, so that delay in forwarding communications and the publications of the Society may be avoided.*

HONORARY FELLOWS.

HIS ROYAL HIGHNESS THE PRINCE OF WALES, K.G.,
Honorary President.

EUROPE.

Austria and Hungary.

Year of Election.		
1874.	**Budapest**	M. CHARLES KELETI, Aulic Councillor; Chief of the Royal Hungarian Statistical Bureau. Doctor of Civil Law; Knight of the Austrian Order of Leopold; Commander of the Russian Order of St. Stanislaus, and of the Portuguese Order of la Villa Viçosa; Associate of the Statistical Society of Paris.
1877.	**Vienna**	DR. HUGH FRANCIS BRACHELLI, Aulic Councillor, Chief of the Statistical Department, Ministry of Commerce; Professor at the Technical High School in Vienna; President of the Permanent Commission for Commercial Values. Commander of the Russian Orders of St. Anna and St. Stanislaus, of the Luxembourg Order of the Oak-Crown; Officer of the Order of the Italian Crown; Knight of the Order of the House of Saxe-Ernestine; Officer of Public Instruction of France, &c., &c.
1854.	,,	S. E, M. CHARLES BARON DE CZOERNIG, Privy Councillor (actuel) of His Imperial and Royal Majesty; late President of the Imperial and Royal Central Commission of Statistics at Vienna; Associate of the Statistical Society of Paris.
1879.	,,	PROFESSOR FR. XAVIER von NEUMANN-SPALLART, D.C.L., Aulic Councillor; Professor of Political Economy and Statistics, Agricultural College, University of Vienna; Member of the Imperial Statistical Commission; Honorary Member of the Statistical Society of Paris, and of the Cobden Club, London.
1877.	,,	M. MAX WIRTH, late Chief of the Federal Statistical Bureau of Switzerland.

Belgium.

Year of Election.

1879. **Brussels** ...... DR. EUGÈNE JANSSENS, Doctor of Medicine, &c.; Chief Inspector of the Board of Health in the City of Brussels.

Member of the Royal Academy of Medicine, of the Central Statistical Commission, of the Superior Council of Health, and of the Local Medical Commission, Secretary of the Local Commission of Statistics; Knight of the Order of Leopold, and of the Order of St. Maurice and St. Lazare, &c.; Associate of the Statistical Society of Paris.

Denmark.

1878. **Copenhagen** .. PROFESSOR VIGAND ANDREAS FALBE-HANSEN, Professor of the University of Copenhagen; Member of the "Folkething."

1852. ,, .. DR. PETER ANTON SCHLEISNER, Doctor of Medicine, State Councillor; Knight of the Order of Dannebroge, and the Swedish Order of "Nordstjerne"; Officer of Health of the City of Copenhagen; Member of the Royal General Board of Health for Denmark, Corresponding Member of the Medical Society in Stockholm and Christiania, of the "Société de Médecine publique et d'Hygiène professionelle" in Paris, of the "Société d'Hygiène publique de Bordeaux," and of the "Société royale de Médecine publique de Belgique," &c.

France.

1880. **Paris**.......... DR. JACQUES BERTILLON, Doctor of Medicine, Chief of the Statistical Works of the City of Paris; Director of the "Annals of International Demography;" Professor ("suppléant") at the School of Anthropology; Member of the Statistical Society of Paris.

1856. ,, ... M. MAURICE BLOCK, Member of the Institute of France (Academy of Moral and Political Sciences); Knight of the Legion of Honour, and of Orders of Sweden, Russia, Prussia, Bavaria, Austria-Hungary, Greece, Italy, Spain, Portugal; Member of the Statistical Society of Paris.

1879. ,, ... DR. ARTHUR CHERVIN, Director of the Institution of Stammerers of Paris; Doctor of Medicine and Surgery; Member of the Permanent Statistical Commission of the City of Paris; Founder of the "Annals of International Demography," &c.; Member of the Statistical Society of Paris.

1878. ,, ... M. MAXIMIN DELOCHE, Member of the Institute of France; Honorary Director of the General Statistics of France; Commander of the Legion of Honour; Officer of Public Instruction; Commander of the Imperial and Royal Order of Francis Joseph of Austria-Hungary; member of several learned societies.

Year of Election.		
1870.	**Paris**	M. CLÉMENT JUGLAR, Past President of the Statistical Society of Paris; Vice-President of the Society of Political Economy of Paris.
1860.	,,	M. PIERRE ÉMILE LEVASSEUR, Member of the Institute of France; Professor at the College of France and of the Conservatory of Arts and Sciences; Past President of the Statistical Society of Paris; Vice-President of the French Temperance Society and of the Society of Political Economy of Paris.
1860.	,,	M. MARIE LOUIS PIERRE FELIX ESQUIROU DE PARIEU, Senator; Member of the Institute of France; Grand Cross of the Legion of Honour, and Companion of several foreign orders.
1876.	,,	THE PRESIDENT (for the time being) OF THE STATISTICAL SOCIETY OF PARIS.
1880.	,,	THE HONORABLE JEAN BAPTISTE LÉON SAY, Senator; Member of the Institute of France; Past President of the Statistical Society of Paris, of the National Society of Horticulture, of the National Society of Agriculture, and of the Society of Political Economy of Paris.
1887.	,,	M. DANIEL WILSON, Deputy; Past President of the Statistical Society of Paris; Reporter-General of the Budget Committee.

Germany.

1877.	**Bavaria**	DR. GEORGE MAYR, formerly Under Secretary of State in the Imperial Ministry for Alsace-Lorraine; and formerly Director of the Royal Bureau of Statistics of Bavaria; Associate of the Statistical Society of Paris.
1860.	,,	DR. GEORGE KARL LEOPOLD SEUFFERT, Knight of the Order of St. Michael; formerly Chief Inspector and Director of the Royal Custom House at Simbach.
1878.	**Berlin**	DR. CHARLES BECKER, Director of the Imperial Statistical Department of the German Empire; "Geheimer Ober-Regierungsrath;" Associate of the Statistical Society of Paris.
1854.	,,	DR. ERNEST ENGEL, formerly Director of the Royal Statistical Bureau of Prussia; Associate of the Statistical Society of Paris.
1876.	**Frankfort**	THE PRESIDENT (for the time being) OF THE GEOGRAPHICAL AND STATISTICAL SOCIETY OF FRANKFORT.
1871.	**Stuttgart**	SIR HENRY PAGE-TURNER BARRON, Bart. C.M.G., British Minister Resident at Stuttgart.

Great Britain and Ireland.

Year of Election.		
1876.	**Dublin**	THE PRESIDENT (for the time being) OF THE STATISTICAL AND SOCIAL INQUIRY SOCIETY OF IRELAND.
1876.	**Manchester**	THE PRESIDENT (for the time being) OF THE MANCHESTER STATISTICAL SOCIETY.

Italy.

1879.	**Genoa**	SIGNOR GEROLAMO BOCCARDO, Senator; Professor of Economy at the Royal Superior Naval School, and of Statistics at the Royal University of Genoa; Commander of the Order of St. Maurice and St. Lazare; Grand Officer of the Crown of Italy; Knight of the Order of Civil Merit of Savoy, &c.
1880.	**Pavia**	DR. LUIGI COSSA, LL.D., Professor of Political Economy at the University of Pavia; Honorary Member of the Cobden Club.
1874.	**Rome**	SIGNOR LUIGI BODIO, Director-general of Statistics of the Kingdom; Doctor of Laws; Professor of the University of Rome; Associate of the Statistical Society of Paris.
1865.	,,	REV. CESARE CONTINI, Priest and Beneficiato Vaticano; Member of the Statistical Society of Pavia; of the Hygienic Society of Italy; and of the Hygienic Society of Paris.
1877.	,,	S. E. CESARE CORRENTI, Deputy to Parliament, Vice-President of the Central Council of Statistics; late Minister of Public Instruction.
1880.	,,	PROFESSOR ANGELO MESSEDAGLIA, Deputy to Parliament; Professor of the University of Rome; Commander.
1868.	,,	THE MARQUIS ERMENEGILDO DEI CINQUE QUINTILI, Advocate; General Secretary of the Hospitals Commission of Rome.
1854.	**Turin**	SIGNOR GIOVANNI FLECHIA, Professor of Comparative history of the classical and neolatin languages, and of Sanscrit at the University of Turin; Commander; Member of the Royal Academy of Sciences of Turin and of the Lincei; also of the Order of Civil Merit of Savoy.
1845.	**Venice**	SIGNOR FRANCESCO FERRARA, Professor and Director of the Superior School of Commerce at Venice; late Deputy to Parliament; late Minister of Finance.

Russia.

Year of Election.

1873. **St. Petersburg** HIS EXCELLENCY M. PETER SEMENOFF (SEMENOW), Senator; Privy Councillor to His Imperial Majesty; President of the Statistical Council; President of the Imperial Geographical Society; Honorary Member of the Academy of Sciences in St. Petersburg; Associate of the Statistical Society of Paris.

1877. ,, M. A. DE VESSÉLOVSKY, Councillor of State; Director of the Statistical Year-Book and of the Journal of the Ministry of Finance.

Spain.

1845. **Madrid**........ EXM̂O SEÑOR D. JOSÉ MAGÁZ Y JAYME, Grand Cross of Isabella Catolica; Commander of the Order of Carlos 3º; Advocate, and Member of the Council of State; Ex-Deputy of the Cortes; Ex-Senator; Ex-Director-General of Treasury; Ex-Under-Secretary of the Ministry of Finance, &c.

1886. ,, ... EXM̂O SEÑOR D. CARLOS IBAÑEZ É IBAÑEZ DE IBERO, General of the Spanish Army; Member of the Royal Academy of Sciences of Madrid; Corresponding Member of the Institute of France (Academy of Sciences); Associate of the Royal Academy of Brussels; President of the International Geodesic Association; President of the International Committee of Weights and Measures, and of the Permanent Commission of Weights and Measures of Spain; Director-General of the Geographical and Statistical Institute of Spain; &c., &c.

Sweden and Norway.

1858. **Christiania**.... PROFESSOR THORKIL HALVORSEN ASCHEHOǓG, Professor of Law and Political Economy at the University of Christiania; Chairman of the Board of Directors of the Royal Norwegian Hypothekbank; Member of the Institute of International Law, and of the Academies of Christiania, Trondhjem and Upsala, and of the Royal Historical Society of Denmark; Commander of the Norwegian Order of St. Olave; Member of the Swedish Order of the North Star; and Commander of the First Class of the Order of Danebrog.

1874. ,, .. M. A. N. KIŒR, Director of the Statistical Bureau of Norway; Associate of the Statistical Society of Paris.

1860. ,, .. THOMAS MICHELL, Esq., C.B., Her Majesty's Consul-General in Norway.

Turkey.

1877. **Constantinople.** HIS HIGHNESS AHMED VÉFYK PACHA, Senator, &c.

AMERICA.

Dominion of Canada.

Year of Election.		
1876.	**Ottawa**........	JOHN LANGTON, Esq., M.A., late Auditor-General.

United States.

1873.	**Albany, N.Y.** ..	THE HON. WILLIAM BARNES, Counsellor-at-Law; Ex-Superintendent of the Insurance Department, State of New York.
1876.	**New Haven, Conn.**	FRANCIS A. WALKER, Esq., Ph.D., LL.D., President of the Massachusetts Institute of Technology; Member of the National Academy of Sciences; President of the American Statistical Association, Boston.
1870.	**Norwich, Conn.**	THE HON. DAVID A. WELLS, D.C.L., LL.D., Late Special Commissioner of Revenue of the United States; Chairman of Commission for the Revision of Taxes of the State of New York; President of the American Social Science Association; Member of the Board of Arbitration of American Railways; Corresponding Member of the Institute of France; President of the American Free Trade League; Chairman 1883 of the Department of Finance of the American Social Science Association.
1870.	**Taunton, Mass.**	THE HON. JOHN ELIOT SANFORD, Lawyer; Speaker of the House of Representatives; Insurance Commissioner; Chairman of the Board of Harbour and Land Commissioners.
1881.	**Washington** ..	JOHN S. BILLINGS, Esq., M.D., Surgeon United States Army; Member of the National Academy of Science, &c.
1877.	,,	EDWARD YOUNG, Esq., A.M., Ph.D., formerly Chief of the Bureau of Statistics, United States of America.

ASIA.

India.

1886.	**Simla**	JAMES EDWARD O'CONOR, Esq., Assistant Secretary, Department of Finance and Commerce, Government of India.

AUSTRALASIA.

New South Wales.

Year of Election.

1876. **Sydney**........ EDWARD GRANT WARD, Esq., Registrar-General, and a Magistrate of the Colony of New South Wales.

New Zealand.

1876. **Wellington**.... SIR JAMES HECTOR, K.C.M.G., M.D., F.R.S.S., L. and E., F.G.S., &c. Director of the Geological Survey, of the Meteorological Department, and of the New Zealand Institute.

Queensland.

1877. **Brisbane**...... HENRY JORDAN, Esq., Member of Legislative Assembly.

Tasmania.

1876. **Hobart**........ EDWIN CRADOCK NOWELL, Esq., J.P., Clerk of Executive and Legislative Councils, and late Government Statistician.

Victoria.

1875. **Melbourne** .... HENRY HEYLYN HAYTER, Esq., C.M.G., Government Statist of Victoria; Officer of Public Instruction (France); Honorary Member of the Statistical and Social Inquiry Society of Ireland, of the Statistical Association of Tokio, and of the Royal Society of Tasmania; Honorary Corresponding Member of the Statistical Society of Manchester, of the Geographical Society of Bremen, and of the Royal Society of South Australia; Fellow and Honorary Corresponding Secretary for Victoria of the Royal Colonial Institute; Associate of the Statistical Society of Paris.

1858. ,, ... WILLIAM HENRY ARCHER, Esq., K.S.G., F.I.A., F.L.S., &c., Barrister-at-Law.

NOTE.—The Executive Committee request that any inaccuracies in the foregoing List of HONORARY FELLOWS may be pointed out, and that all changes of address may be notified to the Secretary, so that delay in forwarding communications and the publications of the Society may be avoided.

ROYAL STATISTICAL SOCIETY.

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RULES AND BYE-LAWS OF THE ROYAL STATISTICAL SOCIETY.

Objects of the Society.

1. The objects of the Royal Statistical Society are to collect, arrange, digest and publish facts, illustrating the condition and prospects of society in its material, social, and moral relations; these facts being for the most part arranged in tabular forms and in accordance with the principles of the numerical method.

The Society collects new materials, condenses, arranges, and publishes those already existing, whether unpublished or published in diffuse and expensive forms, in the English or in any foreign language, and promotes the discussion of legislative and other public measures from the statistical point of view. These discussions form portions of the published Transactions of the Society.

Constitution of the Society.

2. The Society consists of Fellows and Honorary Fellows, elected in the manner hereinafter described.

Number of Fellows and Honorary Fellows.

3. The number of Fellows is unlimited. Foreigners or British subjects of distinction residing out of the United Kingdom may be admitted as Honorary Fellows, of whom the number shall not be more than seventy at any one time.

Proposal of Fellows.

4. Every Candidate for admission as a Fellow of the Society shall be proposed by two or more Fellows, who shall certify from their personal knowledge of him or of his works, that he is a fit person to be admitted a Fellow of the Society. Every such certificate having been read and approved of at a Meeting of the Council, shall be suspended in the office of the Society until the following Ordinary Meeting, at which the vote shall be taken.

Election of Fellows.

5. In the election of Fellows, the votes shall be taken by ballot. No person shall be admitted unless at least sixteen Fellows vote, and unless he have in his favour three-fourths of the Fellows voting.

Admission of Fellows.

6. Every Fellow elect is required to take the earliest opportunity of presenting himself for admission at an Ordinary Meeting of the Society.

The manner of admission shall be thus:—

Immediately after the reading of the minutes, the Fellow elect, having first paid his subscription for the current year or his composition, shall sign the obligation contained in the Fellowship-book, to the effect following:—

"We, who have underwritten our "names, do hereby undertake, each for "himself, that we will endeavour to "further the good of the Royal Statis-"tical Society for improving Statistical "Knowledge, and the ends for which "the same has been founded; that we "will be present at the Meetings of the "Society as often as conveniently we "can, and that we will keep and fulfil "the Bye-laws and Orders of this "Society: provided that whensoever "any one of us shall make known, by "writing under his hand, to the Secre-"taries for the time being, that he "desires to withdraw from the Society, "he shall be free thenceforward from "this obligation."

Whereon the President, taking him by the hand, shall say,—"By the "authority, and in the name of the "Royal Statistical Society, I do admit "you a Fellow thereof."

Upon their admission Fellows shall have the right of attaching to their names the letters F.S.S., but not in connection with any trading or business advertisement other than the publication of any book or literary notice.

Admission of Honorary Fellows.

7. There shall be Two Meetings of the Society in the year, on such days as shall be hereafter fixed by the Council, at which Honorary Fellows may be elected.

No Honorary Fellow can be recommended for election but by the Council. At any Meeting of the Council any Member thereof may propose a Foreigner or British subject of distinction residing out of the United Kingdom, delivering at the same time a written statement of the qualifications of, offices held by, and published works of, the person proposed; and ten days' notice at least shall be given to every Member of the Council, of the day on which the Council will vote by ballot on the question whether they will recommend to the Society the election of the person proposed. No such recommendation to the Society shall be adopted unless at least three-fourths of the votes are in favour thereof.

Notice of the recommendation shall be given from the chair at the Meeting of the Society next preceding that at which the vote shall be taken thereon. No person shall be elected an Honorary Fellow unless sixteen Fellows vote and three-fourths of the Fellows voting be in his favour.

The Council shall have power to elect as Honorary Fellows, the Presidents for the time being of the Statistical Societies of Dublin, Manchester, and Paris, and the President of any other Statistical Society at home or abroad.

Payments by Fellows.

8. Every Fellow of the Society shall pay a yearly subscription of Two Guineas, or may at any time compound for his future yearly payments by paying at once the sum of Twenty Guineas.*

Defaulters.—Withdrawal of Fellows.

9. All yearly payments are due in advance on the 1st of January, and if any Fellow of the Society have not paid his subscription before the 1st of July, he shall be applied to in writing by the Secretaries, and if the same be not paid before the 1st of January of the second year, a written application shall again be made by the Secretaries, and the Fellow in arrear shall cease to receive the Society's publications, and shall not be entitled to any of the privileges of the Society until such arrears are paid; and if the subscription be not discharged before the 1st of February of the second year, the name of the Fellow thus in arrear shall be exhibited on a card suspended in the office of the Society; and if, at the next Annual General Meeting, the amount still remain unpaid, the defaulter shall, unless otherwise authorised by the Council, be announced to be no longer a Fellow of the Society, the reason for the same being at the same time assigned. No Fellow of the Society can withdraw his name from the Society's books, unless all arrears be paid; and no resignation will be deemed valid unless a written notice thereof be communicated to the Secretaries. No Fellow shall be entitled to vote at any Meeting of the Society until he shall have paid his subscription for the current year.

Expulsion of Fellows.

10. If any Fellow of the Society, or any Honorary Fellow, shall so demean himself that it would be for the dishonour of the Society that he longer continue to be a Fellow or Honorary Fellow thereof, the Council shall take the matter into consideration; and if the majority of the Members of the Council present at some Meeting (of which and of the matter in hand such Fellow or Honorary Fellow, and every Member of the Council, shall have due notice) shall decide by ballot to recommend that such Fellow or Honorary Fellow be expelled from the Society, the President shall at its next Ordinary Meeting announce to the Society the recommendation of the Council, and at the following Meeting the question shall be decided by ballot, and if at least three-fourths of the number voting are in favour of the expulsion, the President shall forthwith cancel the name in the Fellowship-book, and shall say,—

"By the authority and in the name "of the Royal Statistical Society, I do

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* Cheques should be made payable to "The Royal Statistical Society," and crossed "Messrs. "Drummond and Co."

"declare that A. B. (naming him) is no "longer a Fellow (or Honorary Fellow) "thereof."

And such Fellow or Honorary Fellow shall thereupon cease to be of the Society.

Trustees.

11. The property of the Society may be vested in three Trustees, chosen by the Fellows. The Trustees are eligible to any other offices in the Society.

President, Council, and Officers.

12. The Council shall consist of a President and thirty Members, together with the Honorary Vice-Presidents.

From the Council shall be chosen four Vice-Presidents, a Treasurer, the Honorary Secretaries, and a Foreign Secretary, who may be one of the Honorary Secretaries. The former Presidents who are continuing Fellows of the Society shall be Honorary Vice-Presidents. Any five of the Council shall be a quorum.

Election of President and Officers.

13. The President, Members of Council, Treasurer, and Honorary and Foreign Secretaries shall be chosen annually by the Fellows at the Annual General Meeting.

The Vice-Presidents shall be chosen annually from the Council by the President.

The President shall not be eligible for the office more than two years in succession.

Six Fellows, at least, who were not of the Council of the previous year, shall be annually elected; and of the Members retiring three at least shall be those who have served longest continuously on the Council, unless they hold office as Treasurer or Honorary or Foreign Secretary.

Nomination of President, Council, and Officers.

14. The Council shall, previously to the Annual General Meeting, nominate, by ballot, the Fellows whom they recommend to be the next President and Council of the Society. They shall also recommend for election a Treasurer and the Secretaries (in accordance with Rule 12). Notice shall be sent to every Fellow whose residence is known to be within the limits of the metropolitan post, at least a fortnight before the Annual General Meeting, of the names of Fellows recommended by the Council.

Extraordinary Vacancies.

15. On any extraordinary vacancy occurring of the Office of President, or other Officer of the Society, the Honorary Secretaries shall summon the Council with as little delay as possible, and a majority of the Council, thereupon meeting in their usual place, shall, by ballot, and by a majority of those present, choose a new President, or other Officer of the Society, to be so until the next Annual General Meeting.

Committees.

16. The Council shall have power to appoint Committees of Fellows and also an Executive Committee of their own body. The Committees shall report their proceedings to the Council. No report shall be communicated to the Society except by the Council.

Auditors.

17. At the first Ordinary Meeting of each year, the Fellows shall choose two Fellows, not being Members of the Council, as Auditors, who, with one of the Council, chosen by the Council, shall audit the Treasurer's accounts for the past year, and report thereon to the Society, which report shall be presented at the Ordinary Meeting in February. The Auditors shall be empowered to examine into the particulars of all expenditure of the funds of the Society, and may report their opinion upon any part of it.

Meetings Ordinary and General.

18. The Ordinary Meetings of the Society shall be held monthly, or oftener, during the Session, which shall be from the 1st of November to the 1st of July in each year, both inclusive, on such days and at such hours as the Council shall declare. The Annual General Meeting shall be held on such day in the month of June of each year as shall be appointed by the Council for the time being.

Business of Ordinary Meetings.

19. The business of the Ordinary Meetings shall be to elect and admit Fellows, to read and hear reports, letters, and papers on subjects interesting to the Society. Nothing relating to the bye-laws or management of the Society shall be discussed at the Ordinary Meetings, except that the Auditors' Report shall be presented at the Ordinary Meeting in February, and that the Minutes of the Annual General Meeting, and of every Special General Meeting, shall be submitted for confirmation at the next Ordinary Meeting after the day of such Annual or Special General Meeting. Strangers may be introduced to the Ordinary Meetings, by any Fellow, with the leave of the President, Vice-President, or other Fellow presiding at the Meeting.

Business of Annual General Meeting.

20. The business of the Annual General Meeting shall be to elect the Officers of the Society, and to discuss questions on its bye-laws and management. No Fellow or Honorary Fellow shall be proposed at the Annual General Meeting. No Fellow shall propose any alteration of the rules or bye-laws of the Society at the Annual General Meeting, unless after three weeks' notice thereof given in writing to the Council, but amendments to any motion may be brought forward without notice, so that they relate to the same subject as the motion. The Council shall give fourteen days' notice to every Fellow of all questions of which such notice shall have been given to them.

Special General Meetings.

21. The Council may, at any time, call a Special General Meeting of the Society when it appears to them necessary. Any twenty Fellows may require a Special General Meeting to be called, by notice in writing signed by them, delivered to one of the Secretaries, specifying the questions to be moved. The Council shall, within one week of such notice, appoint a day for such Special General Meeting, and shall give at least one week's notice of every Special General Meeting, and of the questions to be moved, to every Fellow within the limits of the metropolitan post, whose residence is known. No business shall be brought forward at any Special General Meeting other than that specified in the notice convening the same.

Duties of the President.

22. The President shall preside at all Meetings of the Society, Council, and Committees, which he shall attend, and in case of an equality of votes, shall have a second or casting vote. He shall sign all diplomas of admission of Honorary Fellows. He shall admit and expel Fellows and Honorary Fellows, according to the bye-laws of the Society.

Duties of the Treasurer.

23. The Treasurer shall receive all moneys due to, and pay all moneys owing by, the Society, and shall keep an account of his receipts and payments. No sum exceeding Ten Pounds shall be paid but by order of the Council, excepting always any lawful demand for rates or taxes. The Treasurer shall invest the moneys of the Society in such manner as the Council shall from time to time direct.

Duties of the Honorary Secretaries.

24. The Honorary Secretaries shall, under the control of the Council, conduct the correspondence of the Society; they or one of them shall attend all Meetings of the Society and Council, and shall duly record the Minutes of the Proceedings. They shall issue the requisite notices, and read such papers to the Society as the Council may direct.

Powers of the Vice-Presidents.

25. A Vice-President, whether Honorary or nominated, in the chair, shall act with the power of the President in presiding and voting at any Meeting of the Society or Council, and in admitting Fellows; but no Vice-President shall be empowered to sign diplomas of admission of Honorary Fellows, or to expel Fellows or Honorary Fellows. In the absence of the President and Vice-Presidents, any Member of Council may be called upon by the Fellows then present, to preside at an Ordinary or Council Meeting, with the same power as a Vice-President.

Powers of the Council.

26. The Council shall have control over the papers and funds of the Society, and may, as they shall see fit, direct the publication of papers and the expenditure of the funds, in accordance with the provisions of the Charter.

27. The Council shall be empowered at any time to frame Regulations not inconsistent with these bye-laws, which shall be and remain in force until the next Annual General Meeting, at which they shall be either affirmed or annulled; but no Council shall have power to renew Regulations which have once been disapproved at an Annual General Meeting.

28. The Council shall have the custody of the Common Seal. The Common Seal shall not be affixed to any instrument, deed, or other document, except by order of the Council and in the presence of at least two Members of the Council, and in accordance with such other regulations as the Council shall from time to time prescribe. The fact of the seal having been so affixed shall be entered on the minutes of the Council.

29. No Dividend, Gift, Division, or Bonus in money shall be made by the Society, unto or between any of the Fellows or Members, except as hereinafter provided.

30. The Council shall publish a Journal of the Transactions of the Society, and such other Statistical Publications as they may determine upon, and may from time to time pay such sums to Editors and their assistants, whether Fellows of the Society or not, as may be deemed advisable.

31. All communications to the Society are the property of the Society, unless the Council allow the right of property to be specially reserved by the Contributors.

REGULATIONS OF THE LIBRARY.

1. The Library is open daily from 10 a.m. till 5 p.m., except on Saturdays, when it closes at 2 p.m.; and it is entirely closed during the month of September.

2. Members of the Society are permitted to take out Books on making personal application, or by letter addressed to the Librarian.

3. Members are not to have more than two works at a time, nor keep any books longer than a month.

4. Scientific Journals and Periodicals are not circulated until the volumes are completed and bound.

5. Cyclopædias and works of reference are not circulated.

6. Any Member damaging a book, either replaces the work, or pays a fine equivalent to its value.

7. Books taken from the shelves for reference, are *not* to be replaced, but must be laid on the Library table.

8. The Secretary shall report to the Council any infringement of these regulations.

DONORS TO THE LIBRARY.

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Foreign Countries.

Argentine Republic.
Austria and Hungary
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Greece.
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Saxony.
Prussia.
Italy.
Japan.
Mexico.
Netherlands.
Roumania.
Russia.
Servia.
Spain.
Switzerland.
Sweden and Norway.
The United States—
  Federal Government.
  Illinois.
  Massachusetts.
  Michigan.
  New York.
  Rhode Island.
  Wisconsin.
Uruguay.
Venezuela.

Indian, Colonial, and other Possessions.

Bengal.
Canada. *Dominion of.*
Cape of Good Hope.
India (British).
Jamaica.
Manitoba.
Mauritius.
New South Wales.
  „ Zealand.
Queensland.
South Australia.
Tasmania.
Trinidad.
Victoria.

Public Departments.

The Admiralty, Medical Department.
„ Agricultural Department.
„ Army Medical Department.
„ Board of Trade.
„ British Museum.
„ Colonial Office.
„ Crown Agents for the Colonies.
„ Customs, H.M.
„ Fire Brigade, Metropolitan
The Home Office
„ India Office.
„ Inland Revenue.
„ Local Government Board.
„ Police, London Metropolitan.
„ Registrar-General of England.
„ „ „ Ireland.
„ „ „ Scotland.
„ Royal Mint.
„ Woods, Forests, &c., H.M.

During the Year 1887—*Contd.*

Actuaries, The Institute of.
Agriculture, Central Chamber of.
Allen, W. H., & Co., London.
American—
  Academy of Arts and Sciences, Boston.
  Geographical Society, New York.
  Philosophical Soc. of Philadelphia.
Argentine Legation, London.
Argentine Republic—
  The Statistical Bureau.
  Buenos Ayres, Statistical Bureau of.
Arts, Society of, London.
Ashburner, C. A., Esq., U.S.A.
Ashley, W. J., Esq., Oxford.
Asiatic Society of Bengal.
  „ „ Japan.
Association of Chambers of Commerce of the United Kingdom.
Astor Library, New York U.S.A.
Athenæum, The Editor of, London.
Austria and Hungary—
  Statistical Commission.
  Ministry of Commerce.
  Hungarian Statistical Bureau.
  Bohemian Bureau of Lands and Forests.
  Budapest, Statistical Bureau of.
  Prague, Statistical Bureau of.

Babbage, Major-General H. P.
Baker, Dr. H. B., Lansing, U.S.A.
Bankers' Institute, London.
  „ Magazine, London.
  „ „ New York.
Barker, G. F. R., Esq., London.
Barron, Sir Henry, Bart., Stuttgart.
Beggs, Thomas, Esq., London.
Belgium—
  Bureau of General Statistics.
  Administration of Mines.
Belgium—contd.
  Royal Academy of Sciences.
  Bruges, The Burgomaster of.
  Brussels, The Bureau of Hygiene.
Bell, James T., Esq., Glasgow.
Bennett, J., Esq., London.
Bernard, W. L., Esq., London.
Bertillon, Dr. J., Paris.
Besso, Marco, Esq., Trieste.
Billings, Dr. J. S., Washington.
Bi-Metallic League, London.
Bodio, Professor Luigi, Rome.
Bolles, Albert S., Esq., New York.
Bonar, James, Esq., London.
Booth, Charles, Esq., London.
Bourinot, J. G., Esq., Ottawa.
Bourne, William, Esq., Liverpool.
Boutcher, Mortimer, & Co., London.
Brachelli, Dr. H. F., Vienna.
Bradstreet's Journal, The Editor of.
British Association, The.
  „ Iron Trade Association.
Brookes & Green, London.
Buchanan, Dr. George, London.
Buckley, T. J. W., Esq., London.
Building Societies, &c., Gazette.
Bulgarian Statistical Bureau.
Burdett, H. C., Esq., London.

Caillard, A., Esq., Alexandria.
Canada—
  Royal Society of.
  Manitoba Department of Agriculture.
  Winnipeg Board of Trade.
Cape of Good Hope, Colonial Sec.
Carmichael, C. H. E., Esq., London.
Casson, W. A., London.
Cernuschi, H., Esq., Paris.
Chatham, James, Esq., Edinburgh.
Chinese Imperial Maritime Customs.
City Quarterly Magazine.

During the Year 1887—*Contd.*

Civil Engineers, Institution of.
Clarendon Press, The Delegates.
Clark, H. J., Esq., Trinidad.
Cobden Club, the Committee of.
Colombia College, New York.
Commercial and Financial Chronicle of New York.
Commercial World, The Editor of.
Coni, Dr. E. R., Buenos Ayres.
Craigie, Major P. G., London.

Danvers, F. C., Esq., London.
Dauglish, M. F., Esq., London.
Dawson Bros., Messrs., Montreal.
Day, S., Esq., London Hospital.
Danish Statistical Bureau.
„ Political Economy Society.
Denman, A. L., Esq., London.
Dublin Commissioner of Police.
Durant & Co., Messrs., London.

East India Association, London.
Eaton & Sons, London.
Economist, The Editor of, London.
Economista Español, Editor of, Madrid.
Economista, The Editor of, Florence.
Économiste Français, Editor of, Paris.
Edinburgh, The City Chamberlain.
„ Royal Society of.
Egypt, Director-General of Customs.
Ellis, G. H., Esq., Boston.
Ellison & Co., Messrs., Liverpool.
Eves, C. Washington, Esq., London.

Fair Trade League, National, London.
Fairlamb, W., Esq., York.
Finance Chronicle, The Editor of.
Fischer, Gustav, Esq., Jena.
Fish Culture Association, National, London.
Ford, W., C., Esq., Washington.
Fossick, W. G., Esq., London.
Foville, M. A. de, Paris.
Franklin Institute, Philadelphia.
Freemantle, Hon. C. W., C.B., London.
France—
- Ministry of Agriculture.
- „ Commerce.
- „ Justice.
- „ Public Works.
- Paris, Statistical Bureau of.
- Statistical Society of.
- École Libre des Sciences Politiques.
- Reims, Bureau of Hygiene.

Germany—
- Imperial Statistical Bureau.
- Prussian Royal Statistical Bureau.
- Saxony, Royal Statistical Bureau.
- Berlin, Statistical Bureau of.
- Frankfort, Geographical and Statistical Society of.
- „ Statistical Bureau of.
- Hamburg Chamber of Commerce.
- „ Statistical Bureau of.
- Leipzig Geographical Society.
- Railway Association.

Gibb, T. E., Esq., London.
Gionale degli Economisti, The Editor of—, Bologna.
Glasgow, The Mitchell Library.
„ Philosophical Society of.
Goehlert, Dr. Vincenz, Graz.
Gooch & Cousens, London.
Greece, The Consul-General for.
Guatemala, Statistical Bureau of.
Guyot, M. Yves, Paris.

During the Year 1887—*Contd.*

Haggard, Frederick T., Esq., Tunbridge Wells.
Harris, W. A., Esq., Liverpool.
Harrison & Sons, Messrs., London.
Harrower, H. D., Esq., New York.
Hart, Sir Robt., K.C.M.G., Peking.
Hayter, H. Heylyn, Esq., C.M.G., Melbourne, Victoria.
Hector, Sir James, K.C.M.G., F.R.S., Wellington, New Zealand.
Hewat, A., Esq., Edinburgh.
Hill, Dr. A., Birmingham.
Hitchcock, Dr. E., U.S.A.
Hoar, Hon. G. F., Washington.
Holgate, C. W., Esq., London.
Howard Association, London.

Illustrated Science Monthly, The Editor of.
Inàma-Sternegg, Dr. K. T., Vienna.
Index Society, London.
India Rubber and Gutta Percha Journal, The Editor of.
Indian Department of Finance.
„ Government, Calcutta.
Industries, The Editor of, London.
Insurance and Finance Chronicle, The Editor of, Montreal.
Insurance Gazette, The Editor of.
„ Post, The Editor of.
„ Record, The Editor of.
International Statistical Institute.
Investors' Monthly Manual, The.
Iron and Coal Trades' Review, The.
Irving, John, Esq., London.
Italy—
  Bureau of General Statistics.
  Department of Public Debt.
  Director General of Agriculture.

Jakchitch, Dr. V., Belgrade.
Jamaica, The Registrar-General of.
Janssens, Dr. E., Brussels.
Japanese Legation, London.
Japan—
  Bureau of General Statistics, Tokyo.
  Sanitary Bureau, Tokyo.
  Tokyo, Statistical Society of.
  Imperial University.
Jeans, J. S., Esq., London.
Jenkins, F. L., Esq., Brooklyn.
Johnston, R. M., Esq., Tasmania.
Just, A. F., Esq., London.

Keleti, Dr. C., Vienna.
Kelly, Charles, Esq., M.D., F.R.C.P.
Kennedy, C. M., Esq., C.B., London.
Kőrösi, Joseph, Esq., Budapest.

Lack, H. R., Esq., London.
Lawrence, Edwin, Esq., London.
Levasseur, M. Emile, Paris.
Liberty and Property Defence League, London.
Littledale, Ragg, & Co., Liverpool.
Liverpool, Lit. and Phil. Society.
„ Free Public Library.
Local Taxation Committee, London.
London Chamber of Commerce.
„ Hospital, The Secretary.

Mabbs, Rev. G., London.
Machinery Market, Editor of.
Macleod, H. D., Esq., London.
Macmillan & Co., Messrs., London.
Macpherson, W. G., Esq. London.
Madison State Board of Health, Wisconsin.
Magáz y Jayme, S. E. Señor D. José, Madrid.

During the Year 1887—*Contd.*

Manchester—
  Literary and Philosophical Soc.
  Public Free Library.
  Statistical Society of.
Master Builders, National Association of.
Mauritius Almanac, &c., Editor of.
  „ H. E. The Governor of.
  „ The Colonial Secretary.
Mechanical Engineers, Institution of, London
Medical Council, General, London.
  „ Officer of Health, London.
Mexican Statistical Bureau.
Middlesex Hospital, London.
Mitchell Library, Glasgow.
Money, The Editor of, London.
Mongredien, A., Esq., London.
Montreal Medical Officer of Health.
Moss & Co., R. J., Alexandria.
Mulhall, M. G., Esq., Buenos Ayres.
Murray, G. H., Esq., London.

Nature, The Editor of, London.
Netherlands—
  Department of the Interior.
  Director-General of Post Office Savings Banks.
  Legation, London.
  Statistical Institute of.
  „ Society of.
Neumann-Spallart, Dr. F. X. von, Vienna.
New South Wales—
  Agent-General for, London.
  Registrar-General of, Sydney.
New Zealand—
  Registrar-General of.
  Agent-General for.
Neymarck, M. A., Paris.
Nierop, A. H. Van, Esq., Amsterdam.
Norman, General Sir H., Jamaica.
Norwegian Central Statistical Bureau, Christiania.

O'Conor, J. E., Esq., Calcutta.
Oldham, John, Esq., Montevideo.
Oliphant, James, Esq., Edinburgh.
Owen, E. F., Esq., Melbourne.

Page, Edward D., Esq., New York.
Page & Gwyther, London.
Peabody Donation Fund, London.
Peck, Charles F., Esq., New York.
Peek, Sir Henry, London.
Petersen, Aleksis, Esq., Copenhagen.
Phelps, Rev. L. R., Oxford.
Pierrard, Paul, Esq., London.
Pixley & Abell, Messrs., London.
Policy-Holder, Editor of.
Political Science Quarterly, The Editor of, New York, U.S.A.
Powell, Messrs. T. J. and T.
Praschkauer, M., Esq., London.
Price, L. L. F. R., Esq., Oxford.
Purvis, Gilbert, Esq., London.

Queensland, Registrar-General of.

Rabino, J., Esq., Alexandria.
Raffalovich, M. A., Paris.
Rawson, Sir R. W., K.C.M.G., C.B.
Review, The Editor of, London.
Revue Bibliographique Universelle, The Editor of, Paris.
Revue de l'Economie Politique, The Editor of, Paris.
Revue Générale de Droit, The Editor of, Bucharest.
Revue Géographique Internationale, The Editor of, Paris.

During the Year 1887—*Contd.*

Reyer, E., Esq., Vienna.
Rhens, R., Esq., London.
Ronald & Sons, Messrs., Liverpool.
Roth, H. Ling, Esq., Leeds.
Roumanian Central Statistical Bureau.
Royal Agricultural Society.
„ Asiatic Society, London.
„ „ Bombay Branch.
„ „ China „
„ College of Surgeons.
„ Colonial Institute.
„ Geographical Society.
„ Horticultural „
„ Institution of Great Britain.
„ Irish Academy.
„ Med. and Chirurgical Society.
„ Society, London.
„ United Service Institution.
Russell, Dr. J. B., Glasgow.
Russia—
  Central Statistical Committee, St. Petersburg.
  Department of Agriculture.
  „ Customs.
  Imperial Geographical Society.

St. Bartholomew's Hospital, London
Sanitary Record, London.
Sauerbeck, A., Esq., London.
Scherzer, Dr. K. von, Genoa.
Science, The Editor of, New York.
Seligman, E. R. A., Esq., U.S.A.
Servia, Statistical Bureau of.
Shaw, Capt. E. M., C.B., London.
Smithsonian Institution, U.S.A.
Snow, Dr. E. M., Providence, R.I.
South Australia, Chief Secretary of.
„ Royal Society of.
Spain—
  Board of Customs.
  Director-General of Public Works.
  Department of Health.
  Geographical Society of Madrid.
Statist, The Editor of, London.
Statistical and Social Inquiry Society of Ireland, Dublin.
Strachan, T. Y., Esq., Newcastle-on-Tyne.
Surveyors' Institution, The, London.
Swedish Central Statistical Bureau.
Switzerland—
  The Federal Assurance Bureau.
  The Federal Statistical Bureau.
  The Statistical Society.
  Geneva Public Library.

Tasmania, Government Statist of.
„ Royal Society of.
Temperley, W. A., Esq., Newcastle-upon-Tyne
Textile Manufacturer, Editor of.
Thompson, W. J. and H., London.
Trinidad, The Registrar-General of.
Trübner and Co., Messrs., London.
Trustees of the British Museum.

United States—
  Bureau of Education.
  Commissioner of Labor.
  Comptroller of the Currency.
  Department of Agriculture.
  Department of State.
  Surgeon-General, U. States Army.
  Treasury Department.
  Illinois Bureau of Labor Statistics.
  Massachusetts, Board of Health, Lunacy, and Charity.
  Massachusetts Bureau of Statistics of Labor.
  Michigan State Board of Health.
  New York State Library, U.S.A.
  „ Museum.
  „ Bureau of Labor Statistics.

During the Year 1887—*Contd.*

United States—contd.
  Rhode Island, Registrar of Providence.
  Wisconsin State Board of Health.
University College, London.
Urmson, Elliott, & Co., Liverpool.

Vaile, S., Esq., New Zealand.
Van de Linde, G., Esq., London.
Venezuela, Statistical Bureau of.
  „ Consul for, London.
Vessélovsky, A., Esq., St. Petersburg.
Victoria, Department of Mines.
Victoria, Royal Society of.
Vincent, Edgar, Esq., Cairo.

Walker, General Francis A., U.S.A.
Walras, M. Leon, France.
Wandsworth Board of Works.
  „ Public Library.
Weeks, J. D., Esq., U.S.A.
Wells, J. W., Esq., London.
Woolston & Beeton, London.
Wright, Hon. C. D., Boston, Mass.

Yeats, John, Esq., LL.D., London.

LIST OF THE PUBLICATIONS

OF THE

ROYAL STATISTICAL SOCIETY.

	Price.
Proceedings— 308 pp. 1 vol. 8vo. 1834-37	(Out of print)
Transactions— Vol. 1, part 1. 148 pp. 4to. 1837	"
Journal (published quarterly)— Vols. 1—50. 8vo. 1838-87	5*s.* each part
General Analytical Index to Vols. 1—35 of the Journal (1838-72). In 3 parts. 8vo.— (i) For the First Fifteen Volumes (1838-52) (ii) For the Ten Volumes (1853-62) (iii) For the Ten Volumes (1863-72)	3*s.* 6*d.* each part
First Report of a Committee on Beneficent Institutions. I. The Medical Charities of the Metropolis— 68 pp. 8vo. 1857	2*s.* 6*d.*
Catalogue of the Library— iv + 142 pp. 8vo. 1859	(Out of print)
Catalogue of the Library (New)— iv + 573 pp. Cloth, super royal 8vo. 1884	10*s.*
Index to the Catalogue of 1884— i + 372 pp. Cloth, super royal 8vo. 1886	10*s.*
Jubilee Volume— xv + 372 pp. Cloth, 8vo. 1885	10*s.* 6*d.*
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Members only, can obtain sets, or single copies of any number, of the *Journal*, at the Society's Rooms, 9, Adelphi Terrace, Strand, W.C., London.

By a resolution of the Council, dated 12th May, 1854, the price of back numbers of the *Journal* of the Society, charged to Members, was raised from one-half to three-fifths of the publishing price.

NOTE.—One or two numbers of the *Journal* are now out of print.

THOSE persons who are inclined to benefit the Society by legacies are recommended to adopt the following

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I give and bequeath unto the "Royal Statistical Society," the sum of £   , such legacy to be paid out of such part of my personal estate, not specifically bequeathed, as the law permits to be appropriated by will to such a purpose.

NOTE A.—All gifts by will to the Society of land, or of money secured on, or directed to be secured on, or to arise from the sale of, or directed to be laid out in the purchase of, land, will be void. Gifts may be made by will of stock in the public funds, shares or debentures of railway or other joint-stock companies, or money to be paid out of the testator's pure personal estate, or of personal chattels.

NOTE B.—Bequests may be made either for the general purposes of the Society, or to the Society's "Building Fund," which has been recently established.

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